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FILE LAST UPDATED: 5 Mar 2006 (20060305/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

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=> d stat que
L1 33 SEA FILE=REGISTRY ABB=ON PLU=ON NOOTKATON?
L2 SEL PLU=ON L1 1- CEM : 100 TERMS
L3 492 SEA FILE=HCAPLUS ABB=ON PLU=ON L2
L4 492 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 OR NOOTKATON?
L5 7087 SEA FILE=HCAPLUS ABB=ON PLU=ON (TICKS/CV OR ACARI/CV) OR
 TICK OR ACARI OR ANTITICK? OR ANTIACARI?
L6 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 AND L5

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L6 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:904357 HCAPLUS
DOCUMENT NUMBER: 143-224148
TITLE: Arthropod control compositions comprising eremophilane sesquiterpene and dialkylphenol
INVENTOR(S): Dolan, Marc C.; Panella, Nicholas A.; Dietrich, E. B. Gabrielle; Karchesy, Joseph J.; Maupin, Gary O.
PATENT ASSIGNEE(S): The Govt. of the U.S.A, Dept of Health and Human Services, Centers of Disease Control and Prevention, USA; State of Oregon Acting by and Through the State Board of High Education Oregon State University
SOURCE: U.S. Pat. Appl. Publ., 36 pp., Cont.-in-part of U.S. Ser. No. 450,024.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005187289	A1	20050825	US 2005-115849	20050426
WO 2002050053	A2	20020627	WO 2001-US47736	20011207
WO 2002050053	A3	20030116		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2004077713	A1	20040422	US 2003-450024	20031110
PRIORITY APPLN. INFO.:				
			US 2000-254311P	P 20001208
			WO 2001-US47736	W 20011207
			US 2003-450024	A2 20031110

AB Compns. for controlling an arthropod pest population that include an eremophilane sesquiterpene pest control agent (such as, nootkatone or 13-hydroxy-valencene) and a dialkylphenol pesticide (such as carvacrol) are disclosed. The compds. present in the compns. may be isolated from natural sources, semi-synthesized from naturally occurring compds., or completely synthesized. The pest control compns. may be applied directly to a pest or the locus of a pest, and function as topical or ingestible pest toxins.

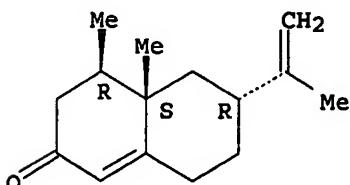
IT 4674-50-4P, Nootkatone

RL: AGR (Agricultural use); BUU (Biological use, unclassified); PUR (Purification or recovery); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation and extraction from Alaska yellow cedar and grapefruit oil as insecticide and acaricide)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



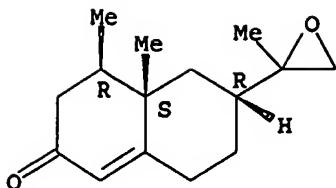
IT 438536-22-2P

RL: AGR (Agricultural use); BUU (Biological use, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation as insecticide and acaricide)

RN 438536-22-2 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(2-methyloxiranyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L6 ANSWER 2 OF 6 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:514138 HCPLUS

TITLE: Potential of Natural Forest Products for the Prevention of Lyme Disease

AUTHOR(S): Piesman, Joseph; Dolan, Marc C.

CORPORATE SOURCE: Division of Vector-Borne Infectious Diseases, Centers for Disease Control and Prevention, Fort Collins, CO, 80522, USA

SOURCE: Abstracts, 60th Northwest Regional Meeting of the American Chemical Society, Fairbanks, AK, United States, June 15-18 (2005); GEN-018. American Chemical Society: Washington, D. C.

CODEN: 69GZQM

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

AB The incidence of Lyme disease continues to increase in the U.S. In 1991, when Lyme disease first became a nationally reportable disease to the Centers for Disease Control and Prevention (CDC), a total of 9,470 cases were reported; in contrast, by 2002 a total of 23,763 cases were reported, >2.5X the total in 1991. Traditional area-wide acaricides can be highly effective in killing nymphal *Ixodes scapularis*, with >95% of nymphs killed in studies using cyfluthrin, deltamethrin, or carbaryl. The majority of residents living in households within the area hyperendemic for Lyme disease will not, however, consider the use of area-wide acaricides. A survey of communities in 4 states (Connecticut, Massachusetts, New Jersey & New York) demonstrated that <25% of the populace have used area-wide acaricides on their own property. In searching for alternative methods of reducing Lyme disease risk, laboratory bioassays were conducted to determine

the

activity of 15 natural products isolated from the essential oil components extracted from the heartwood of Alaska yellow cedar (AYC) (*Chamaecyparis nootkatensis*) against *I. scapularis* nymphs. Nootkatone from AYC was the most effective biocide of the eremophilane sesquiterpenes with an LC₅₀ value of 0.029 mg/mL. Residual LC₅₀ values for Nootkatone did not differ significantly at 4 wk post-treatment from the observations made at the initial 24 h treatment. Nymphal tick repellent bioassays resulted in 5 natural product compds. with repellent dose (RD₅₀) values lower than Deet. The most active compound, valencene-13-ol, had an RD₅₀ of 0.03 mg/mL at 4 h compared to 3.8 mg/mL for Deet. The ability of these natural products to kill and repel ticks at relatively low concns. may represent a future alternative to the use of synthetic pesticides.

L6 ANSWER 3 OF 6 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:484325 HCPLUS

DOCUMENT NUMBER: 144:1573

TITLE: Use of novel compounds for pest control: insecticidal and acaricidal activity of essential oil components from heartwood of Alaska yellow cedar

AUTHOR(S): Panella, Nicholas A.; Dolan, Marc C.; Karchesy, Joseph

CORPORATE SOURCE: J.; Xiong, Yiping; Peralta-Cruz, Javier; Khasawneh, Mohammad; Montenieri, John A.; Maupin, Gary O.
 Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Public Health Service, U.S. Department of Health and Human Services, Fort Collins, CO, 80522, USA

SOURCE: Journal of Medical Entomology (2005), 42(3), 352-358
 CODEN: JMENA6; ISSN: 0022-2585

PUBLISHER: Entomological Society of America
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Laboratory bioassays were conducted to determine the activity of 15 natural products

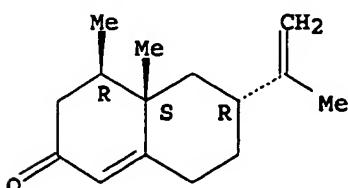
isolated from essential oil components extracted from the heartwood of Alaska yellow cedar, Chamaecyparis nootkatensis (D. Don) Spach., against Ixodes scapularis Say nymphs, Xenopsylla cheopis (Rothchild), and Aedes aegypti (L.) adults. Four of the compds. from the essential oil were identified as monoterpenes, 5 as eremophilane sesquiterpenes, 5 as eremophilane sesquiterpene derivs. from valencene and nootkatone, and one as a sesquiterpene outside the eremophilane parent group. Carvacrol was the only monoterpene that demonstrated biocidal activity against ticks, fleas, and mosquitoes with LC50 values after 24 h of 0.0068, 0.0059, and 0.0051% (wt:vol), resp. Nootkatone from Alaska yellow cedar was the most effective of the eremophilane sesquiterpenes against ticks (LC50 = 0.0029%), whereas the nootkatone grapefruit extract exhibited the greatest biocidal activity against fleas (LC50 = 0.0029%). Mosquitoes were most susceptible to one of the derivs. of valencene, valencene-13-aldehyde (LC50 = 0.0024%), after 24 h. Bioassays to determine residual activity of the most effective products were conducted at 1, 2, 4, and 6 wk after initial treatment. Residual LC50 values for nootkatone did not differ significantly at 4 wk posttreatment from the observations made at the initial 24-h treatment. The ability of these natural products to kill arthropods at relatively low concns. represents an alternative to the use of synthetic pesticides for control of disease vectors.

IT 4674-50-4P, Nootkatone 438536-22-2P,
 Nootkatone 11,12 epoxide
 RL: AGR (Agricultural use); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (insecticidal and acaricidal activity of essential oil components from heartwood of Alaska yellow cedar)

RN 4674-50-4 HCPLUS

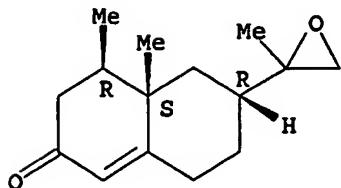
CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 438536-22-2 HCPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(2-methyloxiranyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:18729 HCAPLUS
 DOCUMENT NUMBER: 140:37445
 TITLE: Dihydronootkatone and tetrahydronootkatone as arthropod repellents
 INVENTOR(S): Zhu, Betty C. R.; Henderson, Gregg; Laine, Roger A.
 PATENT ASSIGNEE(S): Board of Supervisors of Louisiana State University and Agricultural and Mechanical College, USA
 SOURCE: U.S. Pat. Appl. Publ., 10 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

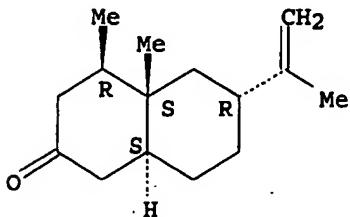
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004005343	A1	20040108	US 2002-189631	20020703
<u>US 6897244</u>	B2	20050524		
WO 2004031140	A2	20040415	WO 2003-US20747	20030701
WO 2004031140	A3	20040708		
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RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005171213	A1	20050804	US 2005-53472	20050208
PRIORITY APPLN. INFO.: US 2002-189631 A 20020703				

AB Two derivs. of nootkatone, tetrahydronootkatone and 1,10-dihydronootkatone, are surprisingly effective as repellents of termites and mosquitoes. Tetrahydronootkatone and 1,10-dihydronootkatone were shown to effectively repel termites at concns. as low as 2 µg/mL and 12.5 µg/mL, resp. Tetrahydronootkatone was shown to repel mosquitos at a concentration of 5%. Tetrahydronootkatone is an effective repellent of termites either by itself or as an addition to other substrates, including mulches made from wood products or other cellulose-containing material. Tetrahydronootkatone or 1,10-dihydronootkatone can be used to protect construction wood from

attack by Formosan subterranean termites, either alone or used in combination with other compds. known to repel termites. It is also believed that these compds. will prove effective in repelling ants, ticks, and cockroaches. These derivs. of nootkatone are non-toxic to humans and other mammals and environmentally safe.

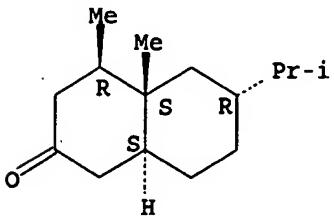
- IT 20489-53-6, 1,10-Dihydronootkatone
 20489-54-7, Tetrahydronootkatone
 RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (arthropod repellent)
 RN 20489-53-6 HCPLUS
 CN 2(1H)-Naphthalenone, octahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R,8aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



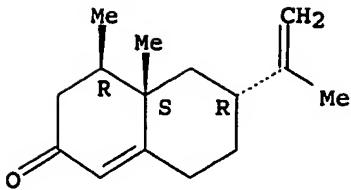
- RN 20489-54-7 HCPLUS
 CN 2(1H)-Naphthalenone, octahydro-4,4a-dimethyl-6-(1-methylethyl)-, (4R,4aS,6R,8aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



- IT 4674-50-4, Nootkatone
 RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (in arthropod repellent compns. comprising dihydronootkatone and/or tetrahydronootkatone)
 RN 4674-50-4 HCPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 5 OF 6 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2003:300627 HCPLUS
 DOCUMENT NUMBER: 138:299241
 TITLE: Extracts of vetiver oil as repellent and toxicant to ants, ticks, and cockroaches
 INVENTOR(S): Henderson, Gregg; Heumann, Donald O.; Laine, Roger A.; Maistrello, Lara; Zhu, Betty C. R.; Chen, Feng
 PATENT ASSIGNEE(S): Board of Supervisors of Louisiana State University and Agricultural and Mechanical College, USA
 SOURCE: U.S. Pat. Appl. Publ., 13 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003073748	A1	20030417	US 2001-932555	20010817
US 6906108	B2	20050614		
US 2004157935	A1	20040812	US 2004-769830	20040202

PRIORITY APPLN. INFO.: US 2001-932555 A3 20010817

AB Ext. of vetiver oil were found to be significant repellents and toxicants of ants, ticks, and cockroaches. Nootkatone was shown to significantly decrease ant invasion and increase mortality in fire ants. Nootkatone is an effective repellent and toxicant of ants either by itself or as an addition to other substrates, including mulches made from vetiver grass roots, diatomaceous earth, alumina, silica, clays; building materials made from either aluminum or wood; and other suitable solid substances. Nootkatone was also a repellent and toxicant to ticks; and a repellent to cockroaches. Nootkatone is non-toxic to humans and other mammals and is environmentally safe. In addition, other components of vetiver oil, specifically α -cedrene, zizanol and bicyclovetivenol, are effective against ants, ticks, and cockroaches.

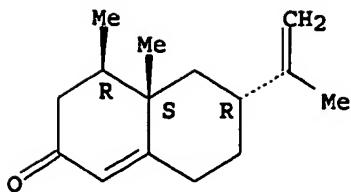
IT 4674-50-4, Nootkatone

RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (repellent and toxicant to ants, ticks, and cockroaches)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

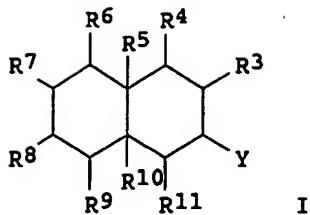


REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 6 OF 6 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2002:487546 HCPLUS
 DOCUMENT NUMBER: 137:59007
 TITLE: Eremophilane sesquiterpenes pesticides for arthropod control
 INVENTOR(S): Maupin, Gary O.; Karchesy, Joseph; Panella, Nicholas A.; Dolan, Marc C.
 PATENT ASSIGNEE(S): The Government of the United States of America,
 Department of Health and Human Services, USA
 SOURCE: PCT Int. Appl., 89 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002050053	A2	20020627	WO 2001-US47736	20011207
WO 2002050053	A3	20030116		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2431548	AA	20020627	CA 2001-2431548	20011207
AU 2002045095	A5	20020701	AU 2002-45095	20011207
EP 1355895	A2	20031029	EP 2001-993241	20011207
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2004077713	A1	20040422	US 2003-450024	20031110
US 2005176818	A1	20050811	US 2005-105807	20050413
US 2005187289	A1	20050825	US 2005-115849	20050426
PRIORITY APPLN. INFO.:			US 2000-254311P	P 20001208
			WO 2001-US47736	W 20011207
			US 2003-450024	A1 20031110

OTHER SOURCE(S): MARPAT 137:59007
 GI



AB The eremophilane sesquiterpenes I ($C_1R_6C_{10}R_5 = Q$; $Y = C_{11}R_1R_2R_{12}$ or Q_1 ; $R_{1-12} = H, O, OH$, lower aliphatic alc. or thiol, etc.; R_{1-12} satisfy valence requirements) are pesticides for arthropod control. The compds. have minimal adverse or toxic effects on humans, animals, and the natural environment. The compds. may be isolated from natural sources, semi-synthesized from naturally occurring compds., or completely synthesized. The compds. may be applied directly to a pest, or the locus of a pest, and function as topical or ingestible toxins. 13-Hydroxy-valencene, valencene-11,12-epoxide, valencene-13-aldehyde, and nootkatone-1,10-11,12-diepoxide are exemplary compds.

IT 438536-22-2P

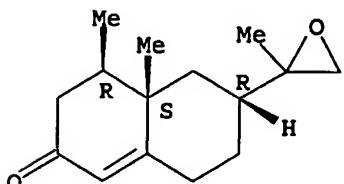
RL: AGR (Agricultural use); BUU (Biological use, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation as pesticide for arthropod control)

RN 438536-22-2 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(2-methyloxiranyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



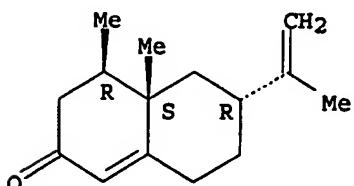
IT 4674-50-4, Nootkatone

RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant in preparation of nootkatone epoxide pesticides for arthropod control)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

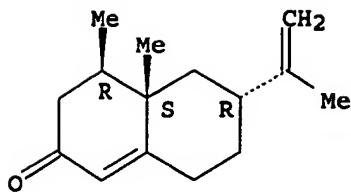


=> => d stat que 18
L1 33 SEA FILE=REGISTRY ABB=ON PLU=ON NOOTKATON?
L2 SEL PLU=ON L1 1- CHEM : 100 TERMS
L3 492 SEA FILE=HCAPLUS ABB=ON PLU=ON L2
L4 492 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 OR NOOTKATON?
L5 7087 SEA FILE=HCAPLUS ABB=ON PLU=ON (TICKS/CV OR ACARI/CV) OR
TICK OR ACARI OR ANTITICK? OR ANTIACARI?
L6 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 AND L5
L7 194193 SEA FILE=HCAPLUS ABB=ON PLU=ON PESTICIDES/CV OR ACARICIDES/CV
OR INSECTICIDES/CV OR RODENTICIDES/CV REPELLENTS/CV OR
PESTICIDE OR INSECTICIDE OR RODENTICIDE OR REPELLENT
L8 16 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4 AND L7) NOT L6

=> d ibib abs hitstr 18 1-16

L8 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:1102086 HCAPLUS
DOCUMENT NUMBER: 143:192667
TITLE: Biological lemon and sweet orange essential oil
composition
AUTHOR(S): Verzera, A.; Trozzi, A.; Dugo, G.; Di Bella, G.;
Cotroneo, A.
CORPORATE SOURCE: Dipartimento di Chimica Organica e Biologica, Facolta
di Scienze, Universita di Messina, Italy
SOURCE: Flavour and Fragrance Journal (2004), 19(6), 544-548
CODEN: FFJOED; ISSN: 0882-5734
PUBLISHER: John Wiley & Sons Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The volatile fraction composition of sweet orange and lemon oils obtained using
biol. and traditional cultivation is reported. The oils came from Sicily
and were industrially obtained. The aim of the research was to establish
whether the use of pesticides in citrus cultivation could
influence the essential oil composition. The volatile fraction was analyzed by
HRGC and HRGC-MS. The content of organophosphorus and organochlorine
pesticides was determined by HRGC-FPD and HRGC-ECD. Differences in the
oil composition resulted, especially in the content of carbonyl compds.; the
results
obtained, altogether, show that the biol. oils are of higher quality in
terms of their composition than traditional ones.
IT 4674-50-4, Nootkatone
RL: BSU (Biological study, unclassified); FFD (Food or feed use); BIOL
(Biological study); USES (Uses)
(lemon and sweet orange essential oil composition from cultivation with and
without pesticides)
RN 4674-50-4 HCAPLUS
CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-
methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



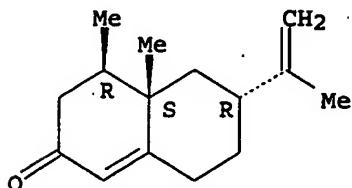
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 2 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:186392 HCPLUS
 DOCUMENT NUMBER: 140:419294
 TITLE: Toxicity and behavioral effects of nootkatone,
 , 1,10-dihydronootkatone
 , and tetrahydronootkatone to the formosan subterranean
 termite (Isoptera: Rhinotermitidae)
 AUTHOR(S): Ibrahim, Sanaa A.; Henderson, Gregg; Zhu, Betty C. R.;
 Fei, Huixin; Laine, Roger A.
 CORPORATE SOURCE: Department of Plant Protection, Faculty of
 Agriculture, Minia University, Minia, Egypt
 SOURCE: Journal of Economic Entomology (2004), 97(1), 102-111
 CODEN: JEENAI; ISSN: 0022-0493
 PUBLISHER: Entomological Society of America
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Toxicity and behavioral effects of nootkatone and two of its
 derivs., 1,10-dihydronootkatone and
 tetrahydronootkatone, to Coptotermes formosanus Shiraki were
 investigated on workers from two different colonies by using topical
 application assays, repellency assays, and sand barrier assays. The acute
 toxicity of the nootkatones on workers from both colonies
 increased as the saturation of the mol. increased, but the difference was
 significant for only one colony. The results of the repellency assays
 showed a similar trend of efficiency; the threshold concentration for
 significant
 repellency was four-fold higher in nootkatone treatments (50
 ppm) than in the reduced derivs. 1,10-
 dihydronootkatone or tetrahydronootkatone (12.5 ppm).
 In sand barrier assays, a concentration of 100 ppm of any of the three chems.
 significantly reduced termite survival, tunnel building, and food
 consumption after a 12-d exposure. Termites preexposed to 100 ppm
 nootkatone-treated sand and placed in containers without
 nootkatone for 15 d continued to exhibit abnormal feeding and
 digging behaviors; survivorship, tunneling, and feeding activities were
 significantly reduced by 83.5, 63.2, and 95.4% resp. Termites pretreated
 for 12 d at concns. of 50 and 75 ppm nootkatone and
 tetrahydronootkatone returned to normal digging activity after
 they were removed from the treatments, but their feeding activity was
 significantly reduced.
 IT 4674-50-4, Nootkatone 20489-53-6, 1,
 10-Dihydronootkatone 20489-54-7,
 Tetrahydronootkatone
 RL: BSU (Biological study, unclassified); BIOL (Biological study)
 (toxicity and behavioral effects of nootkatone, 1,
 10-dihydronootkatone, and tetrahydronootkatone to
 formosan subterranean termite)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

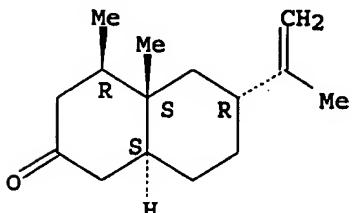
Absolute stereochemistry.



RN 20489-53-6 HCPLUS

CN 2(1H)-Naphthalenone, octahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R,8aS)- (9CI) (CA INDEX NAME)

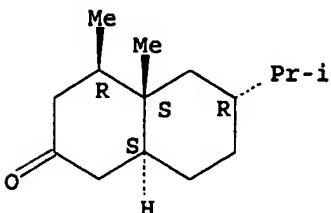
Absolute stereochemistry.



RN 20489-54-7 HCPLUS

CN 2(1H)-Naphthalenone, octahydro-4,4a-dimethyl-6-(1-methylethyl)-, (4R,4aS,6R,8aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT:

46

THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 3 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:980198 HCPLUS

DOCUMENT NUMBER: 140:266111

TITLE: Structure-activity of valencenoid derivatives and their repellence to the Formosan subterranean termite

AUTHOR(S): Zhu, Betty C. R.; Henderson, Gregg; Sauer, Anne M.; Yu, Ying; Crowe, William; Laine, Roger A.

CORPORATE SOURCE: Louisiana State University Agricultural Center, Louisiana Agricultural Experiment Station, Department of Entomology, Louisiana State University, Baton

Pryor 10_769830 Claim 76

SOURCE: Rouge, LA, 70808, USA
 Journal of Chemical Ecology (2003), 29(12), 2695-2701
 CODEN: JCEDC8; ISSN: 0098-0331

PUBLISHER: Kluwer Academic/Plenum Publishers
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 140:266111

AB Eight valencenoid derivs. were prepared and evaluated for their repellent activity against Formosan subterranean termites, *Coptotermes formosanus Shiraki*. Among them, 1,10-dihydronootkatone was the strongest repellent, and valencene was the weakest. Results of the structure-repellency relationships indicated: (1) reduction of the ketone group to the alc. on position 2 of nootkatone curtailed the activity; (2) because of the low activity of valencene relative to nootkatone, the ketone group was essential for repellent activity; (3) reduction of the 1,10 double bond (1,10-dihydronootkatone and tetrahydronootkatone) produced compds. more repellent than nootkatone; (4) the isopropenyl group probably does not participate in binding as evidenced by no significant difference in the repellent activity among nootkatone (double bond between position 11 and 12), isonootkatone (double bond between position 7 and 11), and 11,12-dihydronootkatone.

IT 4674-50-4, Nootkatone 20489-53-6, 1,
 10-Dihydronootkatone 20489-54-7,

Tetrahydronootkatone)

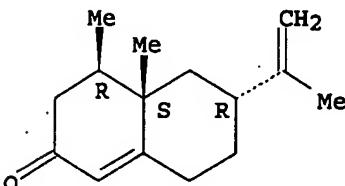
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
 (Uses)

(Formosan subterranean termite repellent)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

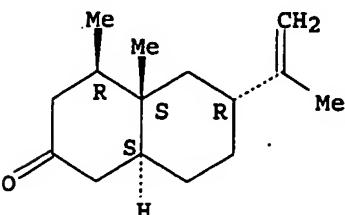
Absolute stereochemistry.



RN 20489-53-6 HCPLUS

CN 2(1H)-Naphthalenone, octahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R,8aS)- (9CI) (CA INDEX NAME)

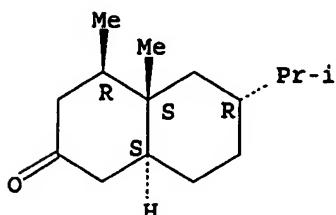
Absolute stereochemistry.



RN 20489-54-7 HCPLUS

CN 2(1H)-Naphthalenone, octahydro-4,4a-dimethyl-6-(1-methylethyl)-, (4R,4aS,6R,8aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



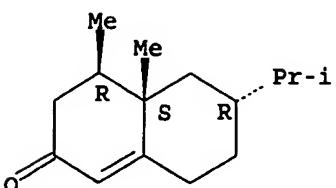
IT 5195-69-7P, 11,12-Dihydronootkatone
15764-04-2P, Isonootkatone)

RL: BUU (Biological use, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation as Formosan subterranean termite repellent)

RN 5195-69-7 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

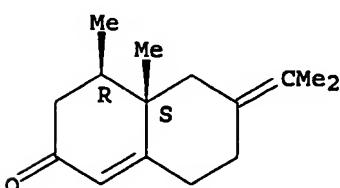
Absolute stereochemistry.



RN 15764-04-2 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethylidene)-, (4R,4aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT:

27

THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 4 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:358482 HCPLUS

DOCUMENT NUMBER: 139:188609

TITLE: The sesquiterpenoid nootkatone and the

absolute configuration of a dibromo derivative

AUTHOR(S): Sauer, Anne M.; Fronczek, Frank R.; Zhu, Betty C. R.;

CORPORATE SOURCE: Crowe, William E.; Henderson, Gregg; Laine, Roger A.
 Department of Chemistry, Louisiana State University,
 Baton Rouge, LA, 70803-1804, USA

SOURCE: Acta Crystallographica, Section C: Crystal Structure
 Communications (2003), C59(5), o254-o256
 CODEN: ACSCEE; ISSN: 0108-2701

PUBLISHER: Blackwell Munksgaard

DOCUMENT TYPE: Journal

LANGUAGE: English

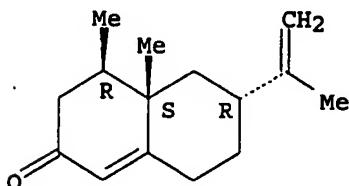
AB Nootkatone, or (4R,4aS,6R)-4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-
 6-(1-methylethenyl)naphthalen-2(3H)-one, C15H22O, a sesquiterpene with
 strong repellent properties against Formosan subterranean
 termites and other insects, has the valencene skeleton. The dibromo
 derivative (1S,3R,4S,4aS,6R,8aR)-1,3-dibromo-6-isopropyl-4,4a-dimethyl-
 1,2,3,4,5,6,7,8-octahydronaphthalen-2-one, C15H24Br2O, has two independent
 mols. in the asym. unit, which differ in the rotation of the iso-Pr group
 with respect to the main skeleton. Crystallog. data are given. The C-Br
 distances are in the range 1.950(4)-1.960(4) Å. Both independent
 mols. form zigzag chains, with very short intermol. carbonyl-carbonyl
 interactions, having the perpendicular motif and O...C distances of
 2.886(6) and 2.898(6) Å. These chains are flanked by intermol.
 Br...Br interactions of distances in the range 4.067(1)-4.218(1) Å.
 The absolute configuration of the dibromo derivative was determined, from
 which that of
 nootkatone was inferred.

IT 4674-50-4, Nootkatone
 RL: PRP (Properties)
 (crystal structure of)

RN 4674-50-4 HCAPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-
 methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2003:97811 HCAPLUS
 DOCUMENT NUMBER: 138:118831
 TITLE: Environmentally safe insect repellent
 composition containing D-limonene and essential oils
 Fried, Howard L.; Khazan, Donna; Morales, Mark N.
 INVENTOR(S):
 PATENT ASSIGNEE(S): The 54 Group, Ltd., USA
 SOURCE: U.S. Pat. Appl. Publ., 6 pp., Cont.-in-part of U. S.
 Ser. No. 874,361.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003026823	A1	20030206	US 2002-162009	20020604
US 2002034556	A1	20020321	US 2001-874361	20010605
EP 1404352	A1	20040407	EP 2002-753333	20020605
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2005249768	A1	20051110	US 2005-87389	20050322
US PRIORITY APPLN. INFO.: US 2000-209346P P 20000605				
US 2001-874361 A2 20010605				
US 2002-162009 A 20020604				
WO 2002-US17583 W 20020605				

AB An insect repellent composition contains citronella oil, D-limonene, 2 or more synergists, and 3 or more essential oils as the active ingredients. The preferred essential oils are geranium oil, rosemary oil and peppermint oil, but other essential oils may be used. In the preferred embodiment the synergists are aldehyde C-14 and aldehyde C-18. As desired, vanillin may be used as a stabilizer, and fragrances, fragrance enhancers and surfactants may be utilized.

IT 4674-50-4, Nootkatone

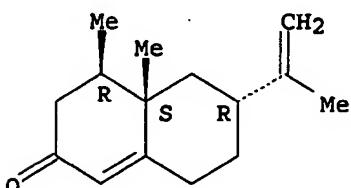
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); MOA (Modifier or additive use); BIOL (Biological study); USES (Uses)

(synergist in environmentally safe insect repellent composition containing D-limonene and essential oils)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R) - (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L8 ANSWER 6 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:43495 HCPLUS

DOCUMENT NUMBER: 138:233376

TITLE: Comparative effects of vetiver oil, nootkatone and disodium octaborate tetrahydrate on Coptotermes formosanus and its symbiotic fauna

AUTHOR(S): Maistrello, Lara; Henderson, Gregg; Laine, Roger A.

CORPORATE SOURCE: Department of Entomology, Louisiana State University Agricultural Center, Baton Rouge, LA, 70803, USA

SOURCE: Pest Management Science (2003), 59(1), 58-68

CODEN: PMSCFC; ISSN: 1526-498X

PUBLISHER: John Wiley & Sons Ltd.

DOCUMENT TYPE: Journal

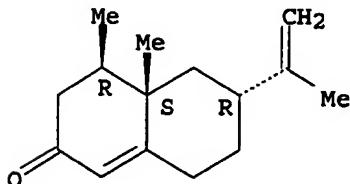
LANGUAGE: English

AB The potential of vetiver oil and nootkatone as wood treatments against Coptotermes formosanus Shiraki was examined by assessing the effects on termite tunneling, feeding activity and survival, and the consequences on the symbiont protozoa responsible for wood digestion. Comparisons were

made with non-treated wood (control), wood treated with the borate compound Tim-Bor (a commonly used lumber preservative) and absence of a food source (starved termites), using choice and no-choice tests. All wood slices were prepared at the same time using a 10 g liter⁻¹ solution of each substance and were tested in four different sessions over one year to investigate longevity of the effects. Termites had to tunnel through sand to exploit the food sources, consisting of two wood slices, placed on opposite sides of the exptl. enclosure. No-choice tests showed that in the presence of vetiver oil or nootkatone, tunneling activity was always the lowest; wood consumption, termite survival and flagellate nos. and species distribution were significantly different from the control and similar to the results obtained for starved termites and with Tim-Bor-treated wood. Nootkatone neg. affected termites for 12 mo and was longer lasting than vetiver oil. In choice tests, when vetiver oil or nootkatone were present, termites exhibited a significant preference for non-treated wood. Our results confirmed both the toxicity and absence of repellency of Tim-Bor. Vetiver oil and especially nootkatone affected Formosan subterranean termites and their protozoa, acting as arrestants, repellents and feeding deterrents, and represent a promising natural alternative for the control of this invasive pest..

IT 4674-50-4, Nootkatone
 RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (effects on Coptotermes formosanus and its symbiotic fauna)
 RN 4674-50-4 HCPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



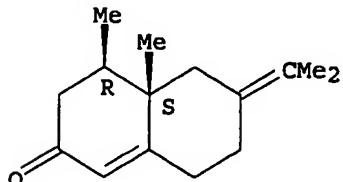
REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 7 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2002:679014 HCPLUS
 DOCUMENT NUMBER: 138:316185
 TITLE: Comparative chemical and biological investigations of certain essential oils belonging to families Asteraceae, Lamiaceae and Graminae
 AUTHOR(S): Hifnawy, Mohamed S.; Rashwan, Omar A.; Rabeh, Mohamed A.
 CORPORATE SOURCE: Department of Pharmacognosy, Faculty of Pharmacy, Cairo, 11562, Egypt
 SOURCE: Bulletin of the Faculty of Pharmacy (Cairo University) (2001), 39(2), 35-53
 CODEN: BFPHA8; ISSN: 1110-0931
 PUBLISHER: Cairo University, Faculty of Pharmacy
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The demand for pesticidal and antimicrobial compds. of natural origin are now of great importance as they are more safe, more selective and

biodegradable. Identification of different constituents of Artemisia monosperma Del., A. judaica L., A. herba alba. Asso., Achillea fragrantissima (Forsk) Sch.Bip., Tanacetum santolinoides (D.C.) Feinbr and Fertig, Cymbopogon citratus Stapf. and C. nardus Rendle, Ocimum basilicum L. and O. canum Sims. were performed using GC and GC/MS anal. The antibacterial activity against Bacillus subtilis and Escherichia coli, larvical activity against Culex pipiens mosquito and cotton leafworm Spodoptera littoralis (Biosd.) larvae, insecticidal activity against houseflies Musca domestica L. and rodenticidal activity against white mice Mus musculus were performed. The oil of T. santolinoides showed the highest antibacterial activity against both bacterial species tested followed by C. nardus, C. citratus, A. fragrantissima and A. judaica oils, while that of O. basilicum showed no antibacterial activity. Others oils had nonsignificant antibacterial activity against both bacterial species tested. The oil of T. santolinoides was the most potent against all biol. species tested, followed by A. monosperma against Culex pipiens mosquito larvae, O. basilicum against cotton leafworm Spodoptera littoralis (Biosd.) larvae and houseflies Musca domestica L. insects and A. judaica against white mice Mus musculus.

IT 15764-04-2, α -Vetivone
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (component of pesticidal essential oils from Asteraceae, Lamiaceae and Graminae)
 RN 15764-04-2 HCPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethyldene)-, (4R,4aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



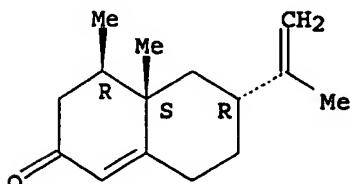
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 8 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2002:613344 HCPLUS
 TITLE: Termiticidal activity of essential oils against the formosan subterranean termite
 AUTHOR(S): Chen, Feng; Zhu, Betty R. C.; Henderson, Gregg; Fei, Huixin; Laine, Roger; Wang, Xi
 CORPORATE SOURCE: Department of Food Science and Human Nutrition, Clemson University, Clemson, SC, 29634, USA
 SOURCE: Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United States, August 18-22, 2002 (2002), AGFD-107. American Chemical Society: Washington, D. C.
 CODEN: 69CZPZ
 DOCUMENT TYPE: Conference; Meeting Abstract
 LANGUAGE: English
 AB Termiticidal activity of six essential oils from vetiver grass, cassia leaf, clove bud, cedarwood, lemon grass, and geranium, were investigated against the Formosan subterranean termite Coptotermes formosanus. Vetiver

oil and Clove bud oil in the controlled conditions showed the most effective repellency and toxicity, resp. In this study, nootkatone from vetiver oil was also found to possess potent repellent and toxic activity against the termite.

L8 ANSWER 9 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2002:29183 HCPLUS
 DOCUMENT NUMBER: 136:162704
 TITLE: Efficacy of vetiver oil and nootkatone as soil barriers against formosan subterranean termite (Isoptera: Rhinotermitidae)
 AUTHOR(S): Maistrello, Lara; Henderson, Gregg; Laine, Roger A.
 CORPORATE SOURCE: Department of Entomology, Louisiana State University Agricultural Center, Baton Rouge, LA, 70803, USA
 SOURCE: Journal of Economic Entomology (2001), 94(6), 1532-1537
 CODEN: JEENAI; ISSN: 0022-0493
 PUBLISHER: Entomological Society of America
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Vetiver oil and its components nootkatone and cedrene were assessed as sand treatments for their efficacy to disrupt food recruitment by Coptotermes formosanus Shiraki. Termites were required to tunnel through sand treated with vetiver oil, nootkatone, cedrene, or untreated sand to reach a food source. Results showed that sand treated with vetiver oil or nootkatone disrupted termite tunneling behavior. As a consequence, after 21 d, wood consumption and termite survival were significantly lower compared with cedrene-treated or untreated sand treatments. Sand treated with vetiver oil or nootkatone at 100 µg/g substrate were effective barriers to termites.
 IT 4674-50-4, Nootkatone
 RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses) (efficacy as soil barrier against formosan subterranean termite)
 RN 4674-50-4 HCPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 10 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:473165 HCPLUS
 DOCUMENT NUMBER: 135:103770
 TITLE: Nootkatone is a repellent for formosan subterranean termite (*Coptotermes formosanus*)
 AUTHOR(S): Zhu, Betty C. R.; Henderson, Gregg; Chen, Feng; Maistrello, Lara; Laine, Roger A.

CORPORATE SOURCE: Department of Biological Sciences, Louisiana State University Agricultural Center, Louisiana Agricultural Experiment Station, Louisiana State University, Baton Rouge, LA, 70803, USA

SOURCE: Journal of Chemical Ecology (2001), 27(3), 523-531

CODEN: JCECD8; ISSN: 0098-0331

PUBLISHER: Kluwer Academic/Plenum Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Nootkatone, a sesquiterpene ketone, isolated from vetiver oil is a strong repellent and toxicant to Formosan subterranean termites. The lowest effective concentration tested was 10 µg/g substrate. This is the first report of nootkatone being a repellent to insects.

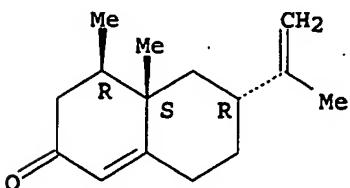
IT 4674-50-4, Nootkatone

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(nootkatone as repellent for formosan subterranean termite)

RN 4674-50-4 HCPLUS

CN 2 (3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 11 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:300439 HCPLUS

DOCUMENT NUMBER: 134:306624

TITLE: Vetiver oil components as termite repellents and termiticides

INVENTOR(S): Henderson, Gregg; Laine, Roger A.; Heumann, Donald O.; Chen, Feng; Zhu, Betty C. R.

PATENT ASSIGNEE(S): Louisiana State University and Agricultural and Mechanical College, USA

SOURCE: PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001028343	A1	20010426	WO 2000-US29006	20001018
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,				

Pryor 10_769830 Claim 76

SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
CA 2423950	AA 20010426	CA 2000-2423950	20001018
EP 1221854	A1 20020717	EP 2000-972286	20001018
EP 1221854	B1 20040303		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL			
AU 771326	B2 20040318	AU 2001-10969	20001018
ES 2213052	T3 20040816	ES 2000-972286	20001018
US 6890960	B1 20050510	US 2001-856760	20001018
PRIORITY APPLN. INFO.: US 1999-160251P P 19991019 WO 2000-US29006 W 20001018			

AB Exts. of vetiver oil were found to significantly repel termites. Nootkatone was isolated and found to be a significant repellent and toxicant of termites. Nootkatone significantly decreased food consumption, decreased tunneling behavior, and increased mortality in termites. Nootkatone is an effective repellent and toxicant of termites either by itself or as an addition to other materials or substrates, including mulches made from vetiver grass roots or other wood products. Nootkatone can also be used to protect construction wood from attack by Formosan subterranean termites. Nootkatone as a repellent is nontoxic to humans and other mammals and is environmentally safe. In addition, α -cedrene was found to be a weak termite repellent; and both zizanol and bicyclovetivenol were found to be repellents and toxicants of termites.

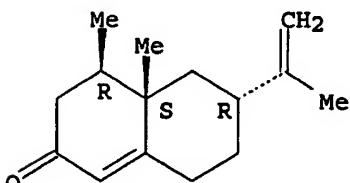
IT 4674-50-4, Nootkatone

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(vetiver oil components as termite repellents and termiticides)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 12 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:597259 HCPLUS

DOCUMENT NUMBER: 133:173361

TITLE: Insecticidal Sesquiterpene from Alpinia oxyphylla against Drosophila melanogaster

AUTHOR(S): Miyazawa, Mitsuo; Nakamura, Yuji; Ishikawa, Yukio

CORPORATE SOURCE: Department of Applied Chemistry Faculty of Science and Engineering, Kinki University, Higashiosaka-shi Osaka,

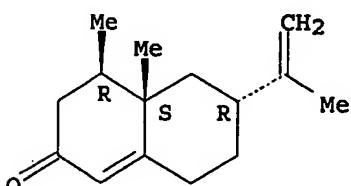
SOURCE: 577-8502, Japan
 Journal of Agricultural and Food Chemistry (2000),
 48(8), 3639-3641
 CODEN: JAFCAU; ISSN: 0021-8561

PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB MeOH extract of *Alpinia oxyphylla* had insecticidal activity against larvae of *Drosophila melanogaster* Meigen. From the extract, an insecticidal compound was isolated by bioassay-guided fractionation and identified as nootkatone (I) by GC, GC-MS, and 1H and 13C NMR spectroscopy. In bioassays for insecticidal activity, I showed an LC50 value of 11.5 µmol/mL of diet against larvae of *D. melanogaster* and an LD50 value of 96 µg/adult against adults. Epinootkatol, however, showed slight insecticidal activity in both assays, indicating that the carbonyl group at the 2-position in I was the important function for enhanced activity of I.

IT 4674-50-4, Nootkatone
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
 (insecticidal sesquiterpene from *Alpinia oxyphylla* against *Drosophila melanogaster*)
 RN 4674-50-4 HCPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 13 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1999:343658 HCPLUS
 DOCUMENT NUMBER: 130:348555
 TITLE: Hematophagous insect repellents containing nootkatone and(or) valencene
 INVENTOR(S): Takagi, Masahiro; Ogino, Kazumasa
 PATENT ASSIGNEE(S): Taisho Pharmaceutical Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 14 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9925196	A1	19990527	WO 1998-JP5141	19981116
W: AU, CA, CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				

AU 9910536	A1	19990607	AU 1999-10536	19981116
JP 11240802	A2	19990907	JP 1998-325392	19981116
EP 1033076	A1	20000906	EP 1998-953056	19981116
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

PRIORITY APPLN. INFO.: JP 1997-314988 A 19971117
WO 1998-JP5141 W 19981116

AB Indoor hematophagous insect repellents with superior safety and valencene effectiveness comprise either an indoor fragrance containing at least 5%, or an aerosol containing at least 0.1% of nootkatone, valencene or a mixture of these ingredients. Thus, 80 g water was mixed with carrageenan 2, locust bean gum 0.5 and propylene glycol 5 g and heated, and benzalkonium chloride 0.1, indigo carmine 0.05, and nootkatone 5 g were added, and the product was poured into a container. The solid room fragrance obtained by cooling was effective against Culex pipiens pallens females.

IT 4674-50-4, Nootkatone

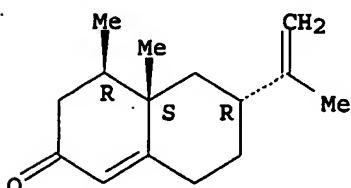
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)

(hematophagous insect repellents containing nootkatone and (or) valencene)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 14 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:208778 HCPLUS

DOCUMENT NUMBER: 128:305149

TITLE: Repellents for control of Dermatophagoïdes

INVENTOR(S): Kusuki, Hirofumi; Fujii, Masashi

PATENT ASSIGNEE(S): Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 10087409	A2	19980407	JP 1996-279823	19960913

PRIORITY APPLN. INFO.: JP 1996-279823 19960913

AB The repellents contain ≥1 compound selected from 89 compound classes including essential oils, glycerides, plant exts., and esters (compds. of the 89 classes are described in the claim) and are applied at

0.01-100 weight% to household utensils, cosmetics, quasi-drugs, and topical preps. Tetrahydrolinalool showed repellent effects against Dermatophagoides pteronyssinus and D. farinae with a min. effective concentration

of 1.0 weight%.

IT 4674-50-4, Nootkatone

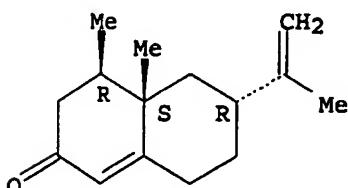
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); TEM (Technical or engineered material use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(repellents for control of Dermatophagoides)

RN 4674-50-4 HCAPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L8 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1996:400558 HCAPLUS
 DOCUMENT NUMBER: 125:51527
 TITLE: Cockroach repellents containing sesquiterpenes
 INVENTOR(S): Harima, Shoichi; Komai, Koichiro; Myake, Takayasu
 PATENT ASSIGNEE(S): Tokiwa Kanpo Pharma, Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08081306	A2	19960326	JP 1994-217066	19940912
PRIORITY APPLN. INFO.:			JP 1994-217066	19940912

AB Cockroach repellents contain (A) sesquiterpenes containing ≥1 groups chosen from CMe₂OH, CHMeCH₂OH, CH₂OH, and cyclic ketones and ≥1 double bonds or (B) sesquiterpene alcs. containing 1 group chosen from CMe₂OH and CHMeCH₂OH and terminal methylene as active ingredients. Elemol at 1.0 g/m² showed 71-100% repellency against Blattella germanica and Periplaneta fuliginosa at 24 h after the application.

IT 4674-50-4P, Nootkatone

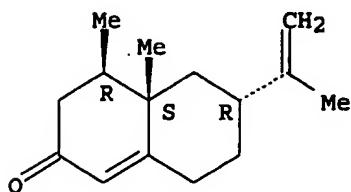
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); USES (Uses)

(cockroach repellents containing sesquiterpenes)

RN 4674-50-4 HCAPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L8 ANSWER 16 OF 16 . HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1983:140523 HCAPLUS

DOCUMENT NUMBER: 98:140523

TITLE: Insect repellents from vetiver oil. Zizanal and epizizanal

AUTHOR(S): Jain, Subhash C.; Nowicki, Stephen; Eisner, Thomas; Meinwald, Jerry

CORPORATE SOURCE: Dep. Chem., Cornell Univ., Ithaca, NY, 14853, USA

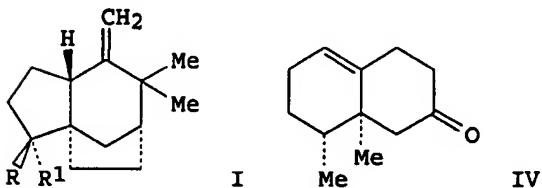
SOURCE: Tetrahedron Letters (1982), 23(45), 4639-42

CODEN: TELEAY; ISSN: 0040-4039

DOCUMENT TYPE: Journal

LANGUAGE: English

GI



AB Chromatog. of vetiver oil, extracted from the roots of the grass *Vetiveria zizanioides*, gave 2 new tricyclic sesquiterpenoids, zizanal and epizizanal (I; R = CHO, R1 = H; R = H, R1 = CHO) (II and III, resp.) together with the known compds. α - and β -vetivone, khusimone, and bicyclodecenone (IV). The structures of II and III were determined by standard chemical and spectral methods. II and III showed insect repelling activity.

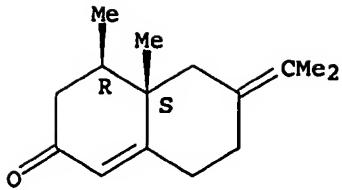
IT 15764-04-2

RL: BIOL (Biological study)
(from *Vetiveria zizanioides*)

RN 15764-04-2 HCAPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethylidene)-, (4R,4aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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L1      33 SEA FILE=REGISTRY ABB=ON PLU=ON NOOTKATON?
L2      SEL PLU=ON L1 1- CHEM :      100 TERMS
L3      492 SEA FILE=HCAPLUS ABB=ON PLU=ON L2
L4      492 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 OR NOOTKATON?
L5      7087 SEA FILE=HCAPLUS ABB=ON PLU=ON (TICKS/CV OR ACARI/CV) OR
          TICK OR ACARI OR ANTITICK? OR ANTIACARI?
L6      6 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 AND L5
L7      194193 SEA FILE=HCAPLUS ABB=ON PLU=ON PESTICIDES/CV OR ACARICIDES/CV
          OR INSECTICIDES/CV OR RODENTICIDES/CV REPELLENTS/CV OR
          PESTICIDE OR INSECTICIDE OR RODENTICIDE OR REPELLENT
L8      16 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4 AND L7) NOT L6
L9      4916981 SEA FILE=HCAPLUS ABB=ON PLU=ON MATERIAL OR SOIL OR POLYMER?
          OR DIATOMACEO? OR DIATOMITE OR SAND OR CELLULOSE
L10     34 SEA FILE=HCAPLUS ABB=ON PLU=ON L4(L)L9
L11     28 SEA FILE=HCAPLUS ABB=ON PLU=ON L10 NOT (L6 OR L8)

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L11 ANSWER 1 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:933468 HCAPLUS
 DOCUMENT NUMBER: 142:196838
 TITLE: Determination method for radical-scavenging activities
 of foods using 1,1-diphenyl-2-picrylhydrazyl, and
 method for using of authentic compounds as antioxidant
 INVENTOR(S): Choi, Hyang Sook
 PATENT ASSIGNEE(S): S. Korea
 SOURCE: Repub. Korean Kongkae Taeho Kongbo, No pp. given
 CODEN: KRXXA7
 DOCUMENT TYPE: Patent
 LANGUAGE: Korean
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
KR 2002037434	A	20020521	KR 2000-67513	20001114
PRIORITY APPLN. INFO.:			KR 2000-67513	20001114

AB Provided are determination method for radical-scavenging activities of foods using

1,1-diphenyl-2-picrylhydrazyl, and method for using of authentic compds. as antioxidant such as alpha terpinene, gamma terpinene, terpinolene, citronellal, citral, geraniol and nootkatone. The free radical scavenger prevents cardiovascular disease, cerebrovascular, cancer and aging by eliminating free radicals from the body. The determination method for radical-scavenging activities of foods comprises adding essential oil, authentic fragrance material, buffer solution, ethanol and

emulsifier to the test sample then adding DPPH thereto; adding a standard antioxidant for the determination of the oxidation resistance to the above mixture and stirring it in a shaker; settling it in the dark at room temperature for 30 min and determining the decrease of the DPPH peak by HPLC at 517nm; and determining the anti-oxidancy of the sample by using the peak height of HPLC according to formula of Trolox equivalency.

L11 ANSWER 2 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:492733 HCPLUS

DOCUMENT NUMBER: 141:53287

TITLE: Citrus flavoring materials

INVENTOR(S): Kawasaki, Kiyomitsu

PATENT ASSIGNEE(S): Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 38 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004168936	A2	20040617	JP 2002-338193	20021121
PRIORITY APPLN. INFO.:			JP 2002-338193	20021121

AB The invention relates to citrus flavoring materials suitable for use in food products characterized by containing natural fragrances, esters, alcs., aldehyde, ketones, phenols, ethers, lactones, hydrocarbons, nitrogen-containing and/or sulfur-containing compds., and/or acids. An orange flavoring material composition containing sweet orange oil 70, dodecyl acetate 1,

lavandulyl acetate 1, octyl butyrate 0.5, decanal di-Et acetal 1, 10-undecen-1-ol 1, 2,4-dodecadienal 1, nerol oxide 2, and solvent q.s. to 100 % was formulated for making orange juice beverage.

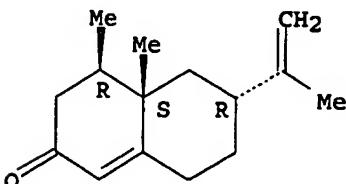
IT 4674-50-4, Nootkatone 5195-69-7

RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(citrus flavoring materials containing defined components)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

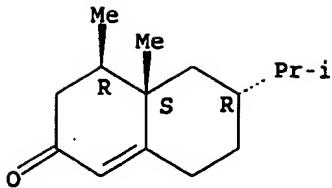
Absolute stereochemistry.



RN 5195-69-7 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L11 ANSWER 3 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:188726 HCPLUS
 DOCUMENT NUMBER: 141:294847
 TITLE: Monitoring of flavor use in the food industry
 AUTHOR(S): Pivovarov, Yu. V.; Ivanova, E. V.; Zenin, V. A.
 CORPORATE SOURCE: FGU "Sergievo-Posadskii TsSM", Russia
 SOURCE: Pivo i Napitki (2003), (4), 46-49
 CODEN: PNIABR
 PUBLISHER: OOO Izdatel'stvo "Pishchevaya Promyshlennost"
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian
 AB An overview is given of the applications of gas chromatog. with mass-selective detection for recognizing anomalous or fraudulent flavor components and flavoring materials in food products. Examples discussed include propylene glycol in flavored tea; triacetin in fruit nectar; Et benzoate, Me anthranilate, and di-Me anthranilate in grape juice; menthol derivs. in lemon beer; nootkatone in grapefruit juice; and racemic mixts. of several compds. in pineapple juice.

L11 ANSWER 4 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:178186 HCPLUS
 DOCUMENT NUMBER: 140:216522
 TITLE: Organoleptic agents comprising nootkatone
 INVENTOR(S): Tamura, Hiroshi; Amaike, Masayasu; Warita, Yasuhiro;
 Ishikawa, Masashi; Takagi, Keiichi
 PATENT ASSIGNEE(S): Hasegawa Koryo Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

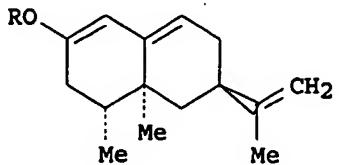
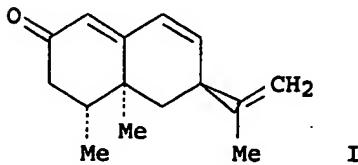
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004067723	A2	20040304	JP 2002-224777	20020801
PRIORITY APPLN. INFO.:			JP 2002-224777	20020801

AB This invention relates to flavoring agents containing nootkatone, valencene epoxide, and nootkatol. The compns. provide long-lasting taste and smell-like grapefruit. For example, a flavoring composition was formulated containing grapefruit oil 989, nootkatone 10, valencene epoxide 0.5, and nootkatol 0.5 part. The composition was used for flavoring candies and drinks.

L11 ANSWER 5 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:95650 HCPLUS
 DOCUMENT NUMBER: 140:146306
 TITLE: Preparation of 2-alkoxynootkatene and 8,9-didehydronootkatone for flavoring and fragrant materials

INVENTOR(S): Amano, Akira; Sakaguchi, Tamizo
 PATENT ASSIGNEE(S): Takasago Perfumery Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004035455	A2	20040205	JP 2002-194171	20020703
PRIORITY APPLN. INFO.:			JP 2002-194171	20020703
OTHER SOURCE(S): MARPAT 140:146306				
GI				



AB 8,9-Didehydronootkatone I is prepared by dehydrogenation-oxidation of 2-alkoxynootkatene II ($R = C1-4$ alkyl). Optically inactive compound is similarly prepared. Thus, reaction of nootkatone with Et orthoformate in the presence of p-toluenesulfonic acid gave 93% 2-ethoxynootkatene, which was treated with chloranil in aqueous acetone at $20-22^\circ$ for 5.5 h to afford 91.6% I.

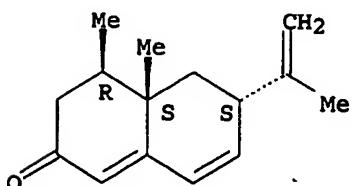
IT 653571-57-4P, (\pm) -Dehydronootkatone

RL: PNU (Preparation, unclassified); PREP (Preparation)
 (preparation of didehydronootkatone for flavoring and fragrant materials via alkoxy-nootkatene)

RN 653571-57-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6-tetrahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6S)-rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



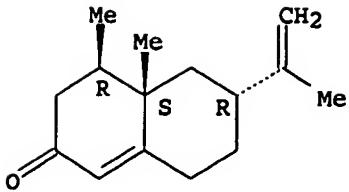
IT 4674-50-4, Nootkatone

RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of didehydronootkatone for flavoring and fragrant materials via alkoxy-nootkatene)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L11 ANSWER 6 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2003:702882 HCPLUS
 DOCUMENT NUMBER: 139:213017
 TITLE: Manufacture of nootkatone with Mucor sp.
 INVENTOR(S): Hashimoto, Toshihiro; Asakawa, Yoshinori; Noma,
 Yoshiaki; Murakami, Chie; Furusawa, Mai; Kanisawa,
 Tsuneyoshi; Emura, Makoto; Mitsuhashi, Katsuhisa
 PATENT ASSIGNEE(S): Takasago Perfumery Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003250591	A2	20030909	JP 2002-51668	20020227
PRIORITY APPLN. INFO.:			JP 2002-51668	20020227

AB Nootkatone (I), useful as a flavoring and perfume material, is manufactured by conversion of valencene (II) into I with Mucor sp. Mucor sp. was shake-cultured in MY medium for 6 days, shake-cultured in Czapek-peptone medium at 27° for 4 days, and cultured in the medium with addition of 100 mg II at 27° for 11 days to give 65.2 mg I (61.0% yield) of ≥95% purity.

L11 ANSWER 7 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2002:446117 HCPLUS
 DOCUMENT NUMBER: 137:19737
 TITLE: Substituted cyclohexenes as flavoring materials
 INVENTOR(S): Goeke, Andreas
 PATENT ASSIGNEE(S): Givaudan SA, Switz.
 SOURCE: Eur. Pat. Appl., 19 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1213276	A1	20020612	EP 2000-126655	20001205
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
WO 2002046131	A1	20020613	WO 2001-EP14107	20011203
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,				

Pryor 10_769830 Claim 76

PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002018322	A5	20020618	AU 2002-18322	20011203
EP 1339659	A1	20030903	EP 2001-999545	20011203
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004515482	T2	20040527	JP 2002-547871	20011203
US 2004073050	A1	20040415	US 2003-433342	20030523
PRIORITY APPLN. INFO.:			EP 2000-126655	A 20001205
			WO 2001-EP14107	W 20011203

OTHER SOURCE(S): MARPAT 137:19737

AB The present invention relates to substituted cyclohexenes, to their use as well as to their preparation method. These compds. have powerful long lasting natural fruity grapefruit notes with minty and fresh green tonalities and can be used as flavoring materials.

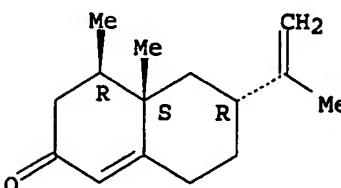
IT 4674-50-4, Nootkatone

RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(substituted cyclohexenes as flavoring materials)

RN 4674-50-4 HCAPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 8 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:31309 HCAPLUS

DOCUMENT NUMBER: 136:101498

TITLE: Use of hydrophilic membranes to obtain flavors and other extracts

INVENTOR(S): Gradley, Michelle Lorraine

PATENT ASSIGNEE(S): Zylepsis Limited, UK

SOURCE: PCT Int. Appl., 42 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002002213	A1	20020110	WO 2001-GB3003	20010704
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT,				

RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,
 UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 EP 1296752 A1 20030402 EP 2001-945526 20010704
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 JP 2004501757 T2 20040122 JP 2002-506833 20010704
 US 2003185956 A1 20031002 US 2003-312438 20030529
 PRIORITY APPLN. INFO.: GB 2000-16312 A 20000704
 WO 2001-GB3003 W 20010704

AB A method for extracting one or more desired components from a mixture in an aqueous

phase comprises separating the aqueous mixture from a water-immiscible hydrophobic

phase by means of a hydrophilic membrane and allowing the desired components to move out of the aqueous phase through the membrane and into the hydrophobic phase. The remaining components have a lower water solubility than the desired component(s), such that the remaining components are incapable of passing through the membrane. The method may be used for the isolation of materials from reaction mixts., for purification purposes or for the preparation of exts. of natural substances (flavors and aromas). Thus, selective extraction of nootkatone from grapefruit peel is attained by using a cellulose acetate dialysis membrane. Exts. may be produced in the form of carrier-based flavors, for instance absorbed on paper or maltodextrins, or encapsulated into maltodextrins, including into glass forms; which can then be formed into powders or tablets and used as such.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 9 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:678276 HCAPLUS

DOCUMENT NUMBER: 135:299936

TITLE: Effects of nootkatone and a borate compound on formosan subterranean termite (Isoptera: Rhinotermitidae) and its symbiont protozoa

AUTHOR(S): Maistrello, Lara; Henderson, Gregg; Laine, Roger A.
 CORPORATE SOURCE: Department of Entomology, Louisiana State University

SOURCE: Agricultural Center, Baton Rouge, LA, 70803, USA
 Journal of Entomological Science (2001), 36(3), 229-236

PUBLISHER: CODEN: JESCEP; ISSN: 0749-8004
 Georgia Entomological Society, Inc.

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Wood treated with disodium octaborate tetrahydrate, with nootkatone, a natural extract isolated from vetiver oil, or with both nootkatone and disodium octaborate tetrahydrate was tested for effects on Coptotermes formosanus Shiraki and its hindgut flagellates. After 7 d disodium octaborate tetrahydrate-treated wood induced high termite mortality and almost complete loss of flagellates, confirming the toxicity of borates to these termites. Wood treated with nootkatone alone or with the nootkatone-borate mix was consumed in significantly lower amts. than the control, and termite survival was comparable to results obtained for starved termites. A significant progressive reduction in the total number of protozoa was observed for all groups, including the controls. Thus, nootkatone acts as a

feeding deterrent, inducing starvation that results in almost a complete loss of *Pseudotrichonympha grassii*, the most important flagellate species for cellulose digestion in this termite.

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 10 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:290022 HCPLUS
 DOCUMENT NUMBER: 134:312041
 TITLE: Apparatus for chemically compacting styrene polymer foams
 INVENTOR(S): Sakai, Tokue
 PATENT ASSIGNEE(S): Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001114927	A2	20010424	JP 1999-299017	19991021
PRIORITY APPLN. INFO.:			JP 1999-299017	19991021

AB The apparatus, useful for recycling styrene polymer foam wastes, comprises a main container part for dissolving the foam wastes in solvents (nootkatone, limonene, etc.), a lid having a device for pushing the foam wastes in the solvents, and a ring seal having a groove to fit the edge of the lid or the container, wherein the lid or the container has a groove on the edge to place the seal. Solvent leaking when the seal is swollen by the solvents is prevented with this apparatus An illustration of the apparatus is given.

L11 ANSWER 11 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:178386 HCPLUS
 DOCUMENT NUMBER: 134:221521
 TITLE: Process for the preparation of nootkatone by laccase catalysis
 INVENTOR(S): Huang, Rongmin; Christenson, Philip A.; Labuda, Ivica M.
 PATENT ASSIGNEE(S): Givaudan S.A., Switz.
 SOURCE: U.S., 14 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6200786	B1	20010313	US 1999-391785	19990908
ZA 2000004379	A	20010228	ZA 2000-4379	20000824
EP 1083233	A1	20010314	EP 2000-117432	20000828
EP 1083233	B1	20030820		
R: AT; BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 247715	E	20030915	AT 2000-117432	20000828
AU 739171	B2	20011004	AU 2000-53700	20000829
SG 87164	A1	20020319	SG 2000-4972	20000831
BR 2000004038	A	20010522	BR 2000-4038	20000906

CA 2317893	AA 20010308	CA 2000-2317893	20000907
JP 2001103989	A2 20010417	JP 2000-270975	20000907
PRIORITY APPLN. INFO.:		US 1999-391785	A 19990908

OTHER SOURCE(S): CASREACT 134:221521

AB A method of producing nootkatone by laccase catalyzed oxidation of valencene. Valencene and microorganisms such as *Botrytis cinerea* or *Trametes versicolor*, which have laccase activity, are reacted in the presence of an oxygen source, at a valencene concentration greater than 0.1%, to form valencene

hydroperoxide. The valencene hydroperoxide is then degraded to nootkatone by ether heating or by reaction with a catalyst such as iron, ascorbic acid, cobalt, copper or any combination of these catalysts. In an alternative embodiment, a purified or partially purified laccase of microbial origin may be employed to produce valencene hydroperoxide. Optionally, a mediator and/or a solvent at a concentration that maintains laccase

activity may also be included. Such mediators include: 1-hydroxybenzotriazole, 2,2'-azino-bis(3-ethylbenzthiazolene-6-sulfonic acid), ferulic acid, dimethoxy benzyl alc., dimethylaminobenzoic acid, catechin, epicatechin, p-hydroxyphenylacetic acid, quercetin, chloropromazine, phenothiazine, naringin, promazine, homovanillic acid, 4-amino-salicylic acid, syringic acid, 4-hydroxycinnamic acid, 4-amino-3-hydroxybenzoic acid, vanillic acid, isovanillic acid, caffeic acid, α -resorcylic acid, β -resorcylic acid, γ -resorcylic acid, 2,3-dihydroxybenzoic acid, 3,4-dihydroxybenzoic acid, 4-hydroxybenzoic acid, 3-hydroxybenzoic acid, 2,4,6 trihydroxybenzoic acid, benzoic acid, cinnamic acid, sodium benzoate, salicylic acid or combinations of these mediators. The enzymic conversion may be conducted with orange oil or other citrus essential oils that contain valencene. The method produces nootkatone in com. viable yields. Thus, a reaction mixture consisting of 60 nkat/mL laccase from *Botrytis cinerea*, 0.5% Tween 80, 0.5 mM 1-hydroxybenzotriazole, and 0.5% valencene was incubated in a shake flask at 30 °C at pH 3.5 for six days with a resulting nootkatone yield of 59.1%.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 12 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:50714 HCAPLUS
 DOCUMENT NUMBER: 134:116793
 TITLE: Volume-reducing agent for polystyrene foams
 INVENTOR(S): Katsuta, Kimio
 PATENT ASSIGNEE(S): Bio Venture Bank Co., Ltd., Japan
 SOURCE: PCT Int. Appl., 12 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001004192	A1	20010118	WO 2000-JP4704	20000713
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,				

DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,
CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: JP 1999-199522 A 19990713
AB The convenient environmentally friendly volume-reducing agent is obtained by adding to a solvent (e.g., nootkatone-containing grapefruit peel extract) for polystyrene foams an insolubilizing agent (e.g., EtOH, hexane) in which polystyrene foams are insol. but which is soluble in the solvent for polystyrene foams. Upon contact with the volume-reducing agent, a polystyrene foam becomes a curdy matter floating thereon without dissolving in the volume-reducing agent. By cleansing the curdy matter, a raw polystyrene material can be obtained from which a polystyrene foam can be regenerated.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 13 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2000:871784 HCAPLUS
 DOCUMENT NUMBER: 134:105588
 TITLE: Nootkatone
 AUTHOR(S): Letizia, C. S.; Cocchiara, J.; Wellington, G. A.;
 Funk, C.; Api, A. M.
 CORPORATE SOURCE: Research Institute for Fragrance Materials, Inc.,
 Hackensack, NJ, 07601, USA
 SOURCE: Food and Chemical Toxicology (2000), 38(Suppl. 3),
 S165-S167

PUBLISHER: Elsevier Science Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

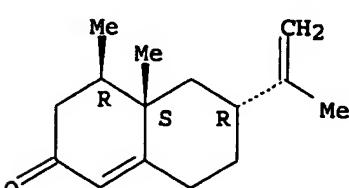
AB International Fragrance association has published a guideline recommending that nootkatone used as a fragrance ingredient should be at least 98% pure with a m.p. of at least 32°. Lower-purity nootkatone, with a min. purity of 86% should not exceed a level of 1% and should be used only in conjunction with at least 4-fold the amount of d-limonene. Nootkatone was given Generally Recognized As Safe status as a flavor ingredient by Flavor and Extract Manufacturers' Association and approved for food use by FDA.

IT 4674-50-4, Nootkatone
 RL: BUU (Biological use, unclassified); FFD (Food or feed use); BIOL (Biological study); USES (Uses)
 (nootkatone as fragrance material and flavoring agent for food)

RN 4674-50-4 HCAPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 14 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:335465 HCPLUS
 DOCUMENT NUMBER: 132:322708
 TITLE: Nootkatone or nootkatone analog derivatives and their use as solvents for recycling or compacting of styrene plastics
 INVENTOR(S): Kashihara, Hiroshi
 PATENT ASSIGNEE(S): Kukita, Takeshi, Japan
 SOURCE: PCT Int. Appl., 35 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

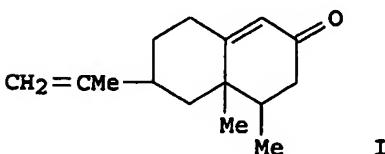
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000027907	A1	20000518	WO 1999-JP6228	19991109
		W: AU, BR, CA, CN, JP, KR, US RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE		
JP 2001131111	A2	20010515	JP 2000-32103	20000209
PRIORITY APPLN. INFO.:			JP 1998-335003	A 19981110
			WO 1999-JP6228	A 19991109

OTHER SOURCE(S): MARPAT 132:322708

AB Grapefruit peel extract and nootkatone (or its analogs) and nootkatone (or its analog) derivs. are used in volume-reduction, dissoln. and recycling of plastic foams (hydrocarbon polymer plastics such as polystyrene and polypropylene), eliminating oily stains, dissoln. of cholesterol, etc. Compared with D-limonene, these substances can reduce the volume of a large amount of plastics (styrene foam, etc.) even in a small amount. Moreover, the resultant solns. containing plastics (styrene foam, etc.) dissolved therein can be easily post-treated at low temps. In addition, nootkatone (or its analogs) contained in grapefruit extract can be converted into nootkatone (or its analog) derivs. by chemical treatments and these derivs. show similar effects.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 15 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1990:610355 HCPLUS
 DOCUMENT NUMBER: 113:210355
 TITLE: Essential oil composition of different grapefruit varieties
 AUTHOR(S): Abkhazava, D. M.; Kharebava, L. G.
 CORPORATE SOURCE: VNIIChSKhChP, USSR
 SOURCE: Subtropicheskie Kul'tury (1989), (6), 111-16
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian
 GI

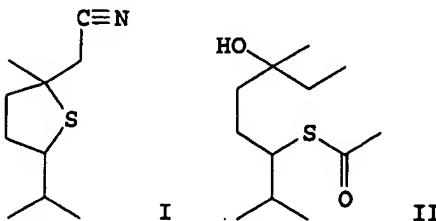


AB Forty-eight compds. were isolated, of which 38 were identified, in oils of different grapefruit varieties. The major compound was limonene comprising 67.60-88.09%, while nootkatone (I), the compound which gives a characteristic aroma of grapefruit, comprised 0.1-0.35% of the oil. The oil yields were 8.3-33.7 µg/g raw material.

L11 ANSWER 16 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1990:572378 HCPLUS
 DOCUMENT NUMBER: 113:172378
 TITLE: Reaction products of geranonitrile and dihydrolinalool with thioacetic acid and their use as aroma or taste enhancers
 INVENTOR(S): Boden, Richard M.; McGhie, Joseph A.
 PATENT ASSIGNEE(S): International Flavors and Fragrances Inc., USA
 SOURCE: Eur. Pat. Appl., 146 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 3
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 369668	A2	19900523	EP 1989-311552	19891108
EP 369668	A3	19900926		
R: CH, DE, FR, GB, LI, NL				
US 4883884	A	19891128	US 1988-273016	19881118
US 4886897	A	19891212	US 1988-273017	19881118
US 4962089	A	19901009	US 1989-424601	19891020
PRIORITY APPLN. INFO.:			US 1988-273016	A 19881118
			US 1988-273017	A 19881118
			US 1989-424601	A 19891020

GI



AB Sixteen products of the reaction of AcSH with geranonitrile (a mixture of isomeric nitriles Me₂C:CHCH₂CH:CMeCH₂CN and Me₂C:CHCH₂CH₂CMe:CHCN) and with dihydrolinalool Me₂C:CMeCH₂CH₂C(OH)MeCH₂Me, especially a thiophene derivative I and a thioacetate II, useful for augmenting or enhancing the aroma or taste of consumable materials, perfume compns., and detergents, were prepared. Thus, AcSH was added dropwise to geranonitrile at 64° over 60 min and the mixture was stirred 1 h at 65-70° and 1.5 h at 70-75° to give I which had a natural buchu leaf, tomato leaf, herbaceous, basil, minty, and grapefruit-like aroma from a fragrance standpoint, and a green, minty, grapefruit-like and nootkatone-like aroma and taste profile. Scented polyethylene and polypropylene pellets, a deodorant stick and liquid detergent composition, a grapefruit flavor,

chewing gum, and toothpaste formulations, etc. containing I were prepared

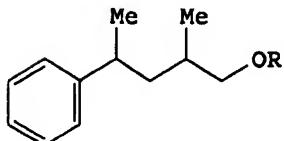
L11 ANSWER 17 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1989:552461 HCAPLUS
 DOCUMENT NUMBER: 111:152461
 TITLE: Commercially processed orange juice products having a more hand-squeezed character
 INVENTOR(S): Swaine, Robert L., Jr.; Rich, Thomas F.; Strobel, Rudolf G. K.; Thundathil, Raju V.; Tsai, Chee Hway
 PATENT ASSIGNEE(S): Procter and Gamble Co., USA
 SOURCE: Eur. Pat. Appl., 50 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 292047	A2	19881123	EP 1988-200908	19880509
EP 292047	A3	19910306		
EP 292047	B1	19930908		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE AT 94031 ES 2058234 CA 1332535 JP 01055166	E T3 A1 A2	19930915 19941101 19941018 19890302	AT 1988-200908 ES 1988-200908 CA 1988-566638 JP 1988-121639	19880509 19880509 19880512 19880518
PRIORITY APPLN. INFO.:			US 1987-52088 EP 1988-200908	A 19870518 A 19880509

AB Com. processed orange juice products, including frozen orange juice concs., which are closer to handsqueezed orange juice in character, are disclosed. At single-strength, these products have a viscosity of ≤ 7 cP (at 8°) and a titratable oil content of $\leq 0.015\%$. These products are further characterized by an orange aroma and flavor component which has a higher ratio of certain desirable "fresh" and "orangey" compds., relative to certain less desirable orange compds., when compared to current com. orange juice products prepared from orange juice concentrate. The ratio of the combined amount of acetaldehyde, Et butyrate, Et 3-hydroxyhexanoate and valencene to the combined amount of hexanal, α -pinene, myrcene, decanal, linalool, octanol, 4-terpineol, α -terpineol, dodecanal, and nootkatone is $\geq 2:1$. Carefully-selected fruits are gently extracted to provide a juice having ≤ 0.015 , preferably 0.010% titratable peel oil. Finishing of the juice is carried out by removing the nonjuice materials and the "sensible" pulp.

L11 ANSWER 18 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1987:72732 HCAPLUS
 DOCUMENT NUMBER: 106:72732
 TITLE: Uses of 2-methyl-4-phenyl-1-pentanol derivatives in augmenting or enhancing the aroma or taste of consumable materials
 INVENTOR(S): Hall, John B.
 PATENT ASSIGNEE(S): International Flavors and Fragrances Inc., USA
 SOURCE: U.S., 26 pp. Division of U.S. Ser. No. 681,656.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4610812	A	19860909	US 1985-784059	19851004
US 4650898	A	19870317	US 1984-681656	19841214
PRIORITY APPLN. INFO.:			US 1984-681656	A3 19841214
GI				



AB Pentanol derivs. I (R = H, Ac) are added to consumable materials, e.g. perfume compns., colognes, perfumed articles, foodstuffs, chewing gums, medicinal products, and chewing tobacco, to augment or enhance the aroma or taste. I (R = H) has a powerful long-lasting stable green grapefruit-like, nootkatone-like, animalic, leathery, vetiver-like, olibanum, musky and floral aroma profile; and a floral, green, weedy, fruity, grapefruit, galbanum-like aroma and taste at 1 ppm. I (R = Ac) has a green, styrallyl acetate-like aroma; and a floral, nootkatone-like, oriental, green pepper-like aroma and taste at 1 ppm. I (R = H) was prepared by condensation of propanal with hydratropic aldehyde to give a mixture containing isomeric 2-methyl-4-pentenals, which were hydrogenated using Raney Ni catalyst. I (R = H) was acetylated with Ac2O in presence of concentrate H3PO4 to give I (R = Ac). A herbal perfume formulation contained Oakmoss absolute 20, 2-methyl-3,4-(methylenedioxy)hydrocinnamic aldehyde 10, Me dihydrojasmonate 100 coumarin 20, musk ketone 80, isocyclocitral 10, galbanum oil 6 rosemary oil 10, pine needle oil 60, fir balsam absolute 10, bergamot oil 60, lemon oil 14, benzyl acetate 468, linalool 80, indole 6, undecalactone 12 and I (R = H) 12 parts by weight

L11 ANSWER 19 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1985:23234 HCPLUS
 DOCUMENT NUMBER: 102:23234
 TITLE: Citrus juice concentrate
 INVENTOR(S): Powers, John Robert; Moore, Robert Sidney; Anderson, Barry Jay; Downton, Galen Edward; Kennedy, Judith Ann; Kearney, Donald Raymond; Strang, David Arthur
 PATENT ASSIGNEE(S): Procter and Gamble Co., USA
 SOURCE: Eur. Pat. Appl., 59 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 110638	A2	19840613	EP 1983-307049	19831118
EP 110638	A3	19860409		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
NO 8304218	A	19840521	NO 1983-4218	19831117
NO 158444	B	19880606		

Pryor 10_769830 Claim 76

NO 158444	C	19880914		
FI 8304238	A	19840520	FI 1983-4238	19831118
FI 78381	B	19890428		
FI 78381	C	19890810		
JP 59146562	A2	19840822	JP 1983-217625	19831118
CA 1213167	A1	19861028	CA 1983-441439	19831118
CA 1213168	A1	19861028	CA 1983-441491	19831118
CA 1213169	A1	19861028	CA 1983-441492	19831118
PRIORITY APPLN. INFO.:				
		US 1982-443083	A 19821119	
		US 1983-504922	A 19830616	
		US 1983-504924	A 19830616	
		US 1983-505012	A 19830616	

AB An orange juice concentrate containing 60% of the volatiles naturally occurring in the juice and 33% of the solids (pulp, sugars, pectin) is produced. Thus, volatiles were steam stripped from orange juice at 37.7-71° and ≤9 in. of Hg, condensed (at 32° to -196° depending on pressure) into oil (limonene [5989-27-5]) and aqueous essence fractions, concentrated, and added back (at >2% of the final product) to the juice concentrate

obtained by evaporation. The volatile fractions may also be added back to a carrier for use as a flavorant for beverages, candy, etc. The process may be applied in the production of other citrus juice concs. The composition of citrus volatile fractions is given.

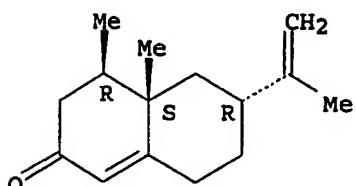
IT 4674-50-4

RL: BIOL (Biological study)
(of citrus, in flavoring material and concentrated citrus juice manufacture)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L11 ANSWER 20 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1984:550196 HCPLUS

DOCUMENT NUMBER: 101:150196

TITLE: Dehydronootkatone as a perfumery and flavoring ingredient

INVENTOR(S): Demole, Edouard Paul; Enggist, Paul

PATENT ASSIGNEE(S): Firmenich S. A., Switz.

SOURCE: Eur. Pat. Appl., 6 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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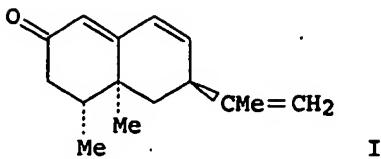
EP 110034 A2 19840613 EP 1983-109130
 EP 110034 A3 19850403
 EP 110034 B1 19861210

R: CH, DE, FR, GB, LI

PRIORITY APPLN. INFO.:
GI

19830915

CH 1982-6361 A 19821102



AB Dehydronootkatone (I) [5090-63-1] is useful as a perfumery and flavoring ingredient for fruit juices. Thus, I was evaluated for its organoleptic properties. A syrup, prepared from sucrose (650 g) and water 1 L containing 0.25% citric acid, was mixed with 5 ppm I. The drink thus obtained had a fruity and flowery character and resembled the note of grapefruit.

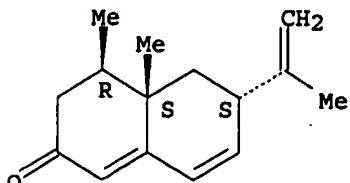
IT 5090-63-1

RL: BIOL (Biological study)
(perfume and flavoring material)

RN 5090-63-1 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6-tetrahydro-4,4a-dimethyl-6-(1-methylethenyl)-,
[4R-(4α,4aα,6β)]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

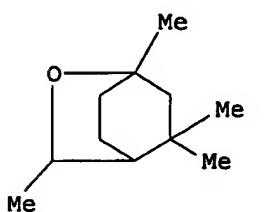


L11 ANSWER 21 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1981:495775 HCPLUS
 DOCUMENT NUMBER: 95:95775
 TITLE: Use of 1,3,5,5,-tetramethyl-2-2-oxabicyclo[2.2.2.]octane in augmenting or enhancing the aroma or taste of foods
 INVENTOR(S): Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; Kiwala, Jacob
 PATENT ASSIGNEE(S): International Flavors and Fragrances Inc., USA
 SOURCE: U.S., 21 pp. Cont.-in-part of U.S. 4,195,099.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 5
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4269862	A	19810526	US 1979-77539	19790921

US 4195099	A	19800325	US 1978-953128	19781020
US 4203947	A	19800520	US 1979-8925	19790202
US 4283576	A	19810811	US 1979-100528	19791205
US 4267067	A	19810512	US 1980-176093	19800807
US 4289705	A	19810915	US 1980-176050	19800807
US 4303725	A	19811201	US 1980-176092	19800807
US 4320771	A	19820323	US 1980-176112	19800807
PRIORITY APPLN. INFO.:				
			US 1978-953128	A2 19781020
			US 1977-850845	A3 19771111
			US 1979-8925	A3 19790202
			US 1979-52334	A3 19790627
			US 1979-77539	A3 19790921

GI



AB 1,3,5,5-Tetramethyl-2-oxabicyclo[2.2.2]octane (I) [78474-70-1] is prepared and used to give a fresh or minty flavor to food, tobacco, pharmaceuticals, and other products. Thus, mesityl oxide [141-79-7] in a suspension of AlCl₃ in MePh was reacted with isoprene [78-79-5] to yield 4-acetyl-1,3,3-trimethyl-1-cyclohexene [55695-36-8]. The latter was reduced with NaBH₃ to give 1,3,3-trimethyl-1-cyclohexene-4-ethanol [78474-71-2] which was reacted with iso-PrOH [67-63-0] and H₂SO₄ to yield I. A eucalyptus oil flavor formulation showed more natural eucalyptus flavor as well as a pleasant citrus nuance and sour effect when I was included at 200 ppm.

IT 4674-50-4

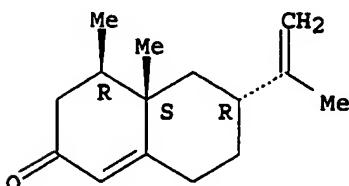
RL: BIOL (Biological study)

(flavoring material containing tetramethyloxabicyclooctane and)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



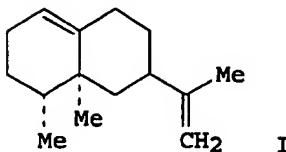
L11 ANSWER 22 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1976:460079 HCPLUS

DOCUMENT NUMBER: 85:60079

TITLE: Juvenile hormone activity of some sesquiterpenes of essential oil of orange

AUTHOR(S): Primo Yufera, E.; Tadeo Lluch, J. L.; Ribo Canut, J.;
 Sendra Sena, J.
 CORPORATE SOURCE: Inst. Agroquim. Tecnol. Aliment., Valencia, Spain
 SOURCE: Revista de Agroquimica y Tecnologia de Alimentos
 (1976), 16(1), 69-78
 CODEN: RATLAB; ISSN: 0034-7698
 DOCUMENT TYPE: Journal
 LANGUAGE: Spanish
 GI



AB Five sesquiterpenes of orange oil (α -copaene, β -elemene, caryophylene, valencene (I), and δ -cadinene and some oxygenated derivs. of I (nootkatone, epoxy noothkatone, and epoxy I) were tested on pupae of *Tribolium castaneum* to determination juvenile hormone activity and on ovaries of *Blattella germanica* to determination gonadotropic hormone activity. A weak activity was observed for some sesquiterpenes, particularly the oxygenated derivs. of I. Some sesquiterpene structures may be suitable starting materials for the synthesis of new hormonomimetics.

L11 ANSWER 23 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1974:569645 HCAPLUS
 DOCUMENT NUMBER: 81:169645
 TITLE: Microbiological study of terpenes. Valencene
 AUTHOR(S): Dhavlikar, R. S.; Albroscheit, G.
 CORPORATE SOURCE: Forschungslab., Dragoco, Holzminden, Fed. Rep. Ger.
 SOURCE: Dragoco Report (German Edition) (1974), 20(12), 251-8
 CODEN: DRGRAV; ISSN: 0366-9645
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 GI For diagram(s), see printed CA Issue.

AB Valencene fermentation by bacteria from Dutch soil and inoculated domestic beer in a mineral salt medium gave 7.5% epoxide I, 8% α -cyperone (II), 18% ketone III, and 18% nootkatone (IV), identified by chemical and spectroscopic methods.

L11 ANSWER 24 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1971:63285 HCAPLUS
 DOCUMENT NUMBER: 74:63285
 TITLE: Odor character and threshold values of nootkatone and related compounds
 AUTHOR(S): Stevens, Kenneth L.; Guadagni, Dante G.; Stern, Donald J.
 CORPORATE SOURCE: West. Util. Res. Dev. Div., U. S. Dep. Agric., Albany, CA, USA
 SOURCE: Journal of the Science of Food and Agriculture (1970), 21(11), 590-3

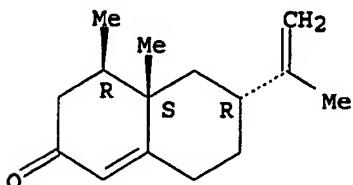
CODEN: JSFAAE; ISSN: 0022-5142

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The odor character and potency of nootkatone obtained from grapefruit oil were compared with those of some closely related compds. These compds. may differ considerably in qual. but the potency remains similar. In addition, synthesized racemic nootkatone had the same potency as the naturally occurring material.

L11 ANSWER 25 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1968:458428 HCPLUS
 DOCUMENT NUMBER: 69:58428
 TITLE: Food additives. Synthetic flavoring substances and adjuvats
 AUTHOR(S): Anon.
 SOURCE: Federal Register (1968), 33(144), 10569, 25 Jul 1968
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The following addnl. flavoring substances are added to the list of materials that may be used in food under the Federal Food, Drug, and Cosmetic Act: linalool oxide [cis- and trans-2-vinyl-2-methyl-5-(1-hydroxy-1-methylethyl)tetrahydrofuran]; methadienol [p-mentha-1,8(10)-dien-9-ol]; methadienyl acetate [p-mentha-1,8(10)-dien-9-yl acetate]; nootkatone (5,6-dimethyl-8-isopropenylbicyclo[4.4.0]-dec-1-en-3-one); ocimene (trans- β -ocimene; 3,7-dimethyl-1,3,6-octatriene); perillaldehyde (4-isopropenyl-1-cyclohexane-1-carboxaldehyde; p-mentha-1,8-dien-7-al); perillyl acetate (p-mentha-1,8-dien-7-yl acetate).
 IT 4674-50-4
 RL: BIOL (Biological study)
 (as flavoring material and food additive)
 RN 4674-50-4 HCPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

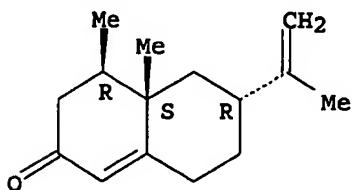
Absolute stereochemistry.



L11 ANSWER 26 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1967:402248 HCPLUS
 DOCUMENT NUMBER: 67:2248
 TITLE: Flavor studies of nootkatone in grapefruit juice
 AUTHOR(S): Berry, Robert E.; Wagner, Charles J., Jr.; Moshonas, M. G.
 CORPORATE SOURCE: U.S. Dep. of Agr., Southern Util. Res. and Develop. Div., Winter Haven, FL, USA
 SOURCE: Journal of Food Science (1967), 32(1), 75-8
 DOCUMENT TYPE: Journal
 LANGUAGE: English

- AB A study was made to determine the flavor threshold of nootkatone (I) in grapefruit juice, and to determine the level at which I would be beneficial. Samples examined in water and (or) reconstituted crystals were: natural I separated from grapefruit peel oil, synthetic I purified once by gas chromatog., synthetic I purified several times by gas chromatog., and crystalline I. I could be detected at 1 ppm. in water, and at 6 ppm. in 10.5° Brix reconstituted juice. All 4 I samples had the same flavor threshold. A I level of 6-7 ppm. was generally considered desirable, but at a level >7 ppm., some judges rated the product as bitter.
- IT 4674-50-4
 RL: BIOL (Biological study)
 (as flavoring material in grapefruit juice)
- RN 4674-50-4 HCPLUS
- CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L11 ANSWER 27 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN

- ACCESSION NUMBER: 1966:19565 HCPLUS
 DOCUMENT NUMBER: 64:19565
 ORIGINAL REFERENCE NO.: 64:3610b-d
 TITLE: Conversion of valencene to nootkatone
 AUTHOR(S): Hunter, G. L. K.; Brogden, W. B., Jr.
 CORPORATE SOURCE: U.S. Dept. of Agr., Winter Haven, FL
 SOURCE: Journal of Food Science (1965), 30(5), 876-8
 CODEN: JFDSAZ; ISSN: 0022-1147
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB Orange condensate oil (5 gal.) was separated from the vapors removed from orange juice during com. orange concentrate preparation. The oil was distilled at 80° 1 mm. to remove most of the limonene. The residue (450 ml.) was distilled to give 1st 150 ml. limonene, and then 200 ml. valencene (I). O-containing materials were removed by percolation through basic Al2O3, with hexane as eluant. The solvent was removed, and I obtained by rectification in a spinning band column at 108°, 5 mm. Hg. tert-Bu chromate reagent was prepared by treating tert-BuOH with CrO3. Treatment of I in CCl4-AcOH-(AcO)2O with the tert-Bu chromate reagent 45 min. at 50° and then 22 hrs. at 60°, followed by cooling, dilution with H2C2O4 solution, and extraction with CCl4, gave an extract of nootkatone (II). This extract was washed with water and with K2CO3 solution, and dried over Na2SO4 to give a 67% yield of II.

L11 ANSWER 28 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN

- ACCESSION NUMBER: 1961:22923 HCPLUS
 DOCUMENT NUMBER: 55:22923
 ORIGINAL REFERENCE NO.: 55:4572b-i

TITLE: Terpenes. CXV. Stereoisomeric vetivanes and sesquiterpenic hydrocarbons of vetiver oil
 AUTHOR(S): Romanuk, M.; Herout, V.
 CORPORATE SOURCE: Ceskoslov. akad. ved, Prague
 SOURCE: Collection of Czechoslovak Chemical Communications (1960), 25, 2540-52
 CODEN: CCCCAK; ISSN: 0010-0765
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable
 GI For diagram(s), see printed CA Issue.
 AB cf. ibid. 1837. Saponification of vetiver oil (Ia) (256 g., d₂₀ 0.9975, n_{20D} 1.5234) with 100 mL. 7.5% alc. KOH 1 h. and extraction with Et₂O gave 214.1 g. nonsaponifiable material, which on treatment with Girard reagent P followed by purification via semicarbazones afforded 175 mg. α-vetivone (I), d₂₀ 0.9996, n_{20D} 1.5315; semicarbazone m. 210° (decomposition), [α]_{20D} 306°, and 290 mg. β-vetivone (II), d₂₀ 0.9950, n_{20D} 1.5320; semicarbazone m. 227° (decomposition), [α]_{20D} -69.4°. Hydrogenation of I (170 mg.) in 25 mL. MeOH over 500 mg. 5% Pd-SrCO₃ gave 162 mg. α-vetivanone (tetrahydro-α-vetivone) (III), b_{2.5} 139-41°, n_{20D} 1.4861; semicarbazone m. 225°. Treatment of 140 mg. III with 300 mg. (CH₂SH)₂ and 300 mg. BF₃.Et₂O in 3 mL. AcOH 1 h. at room temperature gave 182 mg. ethylene thioketal of III (IIIa), m. 77° (petr. ether). Refluxing 170 mg. IIIa with 5 mL. Raney Ni in 20 mL. dioxane 16 h. and extracting with pentane gave vetivane (IV), C₁₅H₂₈, b₁₆ 128°, d₂₀ 0.8849, n_{20D} 1.4714. Hydrogenation of 220 mg. II over 40 mg. PtO₂ in 6 mL. AcOH and chromatog. on 2.5 g. Al₂O₃ gave, by petr. ether elution, 15.3 mg. isovetivane (V), b₂₀ 125-30°, d₂₀ 0.8840, n_{20D} 1.4720, and by elution with 1:1 Et₂O-MeOH, 150 mg. β-vetivanol, m. 100-2° (petr. ether) whose oxidation with CrO₃ in 60% AcOH 24 h. at room temperature afforded β-vetivanone (tetrahydro-β-vetivone) (VI), b₁ 142°, n_{20D} 1.4852; semicarbazone m. 199°. Treatment of 40 mg. VI with (CH₂SH)₂ and Raney Ni gave 19 mg. V. Hydrogenation of 150 mg. vetivazulene over 50 mg. PtO₂ in AcOH gave 125 mg. decahydrovetivazulene (VII), b₁₂ 120-3°, d₂₀ 0.8820, n_{20D} 1.4782, probably a mixture of stereoisomers C₁₅H₂₈ with prevailing trans junction of the rings. Distillation of the residue after the removal of the acids and ketones from 410.5 g. Ia, chromatog. of the 78.2 g. fraction b. at 110-30°/10 mm. over Al₂O₃, elution with petr. ether and distillation of the 56.1 g. residue over a 70 TP column followed by repeated chromatog. over Al₂O₃ gave: tricyclovetivene C₁₅H₂₄ (VIII), d₂₀ 0.9395, n_{20D} 1.5069, [α]_{20D} 37.3° [hydrogenation over PtO₂ in AcOH gave dihydrotricyclovetivene (IX), b₁₅ 124-6°, d₂₀ 0.9198, n_{20D} 1.4951]; 450 mg. α-isovetivenene (X), d₂₀ 0.9257, n_{20D} 1.5222, [α]_{20D} -120.4° (hydrogenation over PtO₂ in AcOH afforded hexahydro-α-isovetivenene, b₁₄ 125-9°, d₂₀ 0.8853, n_{20D} 1.4732); 425 mg. zizanene (XI), C₁₅H₂₄, d₂₀ 0.9163, n_{20D} 1.5090 [α]_{20D} 68.5°; [hydrogenation over PtO₂ in AcOH afforded tetrahydrozizanene (XII), b₁₂ 122-5°, d₂₀ 0.8887, n_{20D} 1.4811]; 0.41 g. β-isovetivenene (XIII), C₁₅H₂₂, d₂₀ 0.9268, n_{20D} 1.5235, [α]_{20D} -68.4°; (hexahydro-β-isovetivenene or V, d₂₀ 0.8815, n_{20D} 1.4763); α-vetivenene (XIV), C₁₅H₂₂ (0.21 g.) d₂₀ 0.9308, n_{20D} 1.5152, [α]_{20D} 142.4°; (hexahydrovetivenene or IV, b₁₅ 126-9°, d₂₀ 0.8914, n_{20D} 1.4765); β-vetivenene (XV), C₁₅H₂₂ (0.81 g.), d₂₀ 0.9469, n_{20D} 1.5378 [α]_{20D} -192.6°; and 0.24 g. dehydrovetivenene, C₁₅H₂₀, d₂₀ 0.9501, n_{20D} 1.5518, [α]_{20D} 176.7°; octahydrodehydrovetivenene (IR spectrum similar to IV), C₁₅H₂₈, b₁₆ 128-30°, d₂₀ 0.9034, n_{20D} 1.4760. IR spectra of I-VII and X-XV were given.

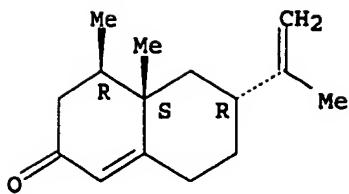
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L2      SEL PLU=ON L1 1- CHEM : 100 TERMS
L3      492 SEA FILE=HCAPLUS ABB=ON PLU=ON L2
L4      492 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 OR NOOTKATON?
L5      7087 SEA FILE=HCAPLUS ABB=ON PLU=ON (TICKS/CV OR ACARI/CV) OR
          TICK OR ACARI OR ANTITICK? OR ANTIACARI?
L6      6 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 AND L5
L7      194193 SEA FILE=HCAPLUS ABB=ON PLU=ON PESTICIDES/CV OR ACARICIDES/CV
          OR INSECTICIDES/CV OR RODENTICIDES/CV REPELLENTS/CV OR
          PESTICIDE OR INSECTICIDE OR RODENTICIDE OR REPELLENT
L8      16 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4 AND L7) NOT L6
L9      4916981 SEA FILE=HCAPLUS ABB=ON PLU=ON MATERIAL OR SOIL OR POLYMER?
          OR DIATOMACEO? OR DIATOMITE OR SAND OR CELLULOSE
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L11     28 SEA FILE=HCAPLUS ABB=ON PLU=ON L10 NOT (L6 OR L8)
L15     42 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4 (L) (TREAT? OR APPLY OR
          APPLIED)) NOT (L6 OR L8)
L16     37 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 NOT L11
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=> d ibib abs hitstr 116 1-37

L16 ANSWER 1 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2005:1261357 HCAPLUS
 DOCUMENT NUMBER: 144:652
 TITLE: Autonomic nerve-modulating agents containing terpenes
 INVENTOR(S): Kagawa, Taiji
 PATENT ASSIGNEE(S): Kao Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005330208	A2	20051202	JP 2004-148981	20040519
PRIORITY APPLN. INFO.:			JP 2004-148981	20040519
AB	Title agents, useful for treatment of autonomic imbalance, contain monoterpane alcs., sesquiterpene ketones, and/or diterpene alcs. as active ingredients. Thus, inhalation of germacrone or hinokitiol to lower respiratory tract increased or decreased heart rate, resp., in rats.			
IT	4674-50-4, Nootkatone RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (autonomic nerve-modulating agents containing terpenes for treatment of autonomic imbalance)			
RN	4674-50-4 HCAPLUS			
CN	2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)-(9CI) (CA INDEX NAME)			

Absolute stereochemistry.



L16 ANSWER 2 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2005:186982 HCPLUS
 TITLE: Development and testing of new insecticidal wood preservatives
 AUTHOR(S): Henderson, Gregg; Smith, W. Ramsay; Laine, Roger A.
 CORPORATE SOURCE: Department of Entomology, LSU AgCenter, Baton Rouge, LA, 70803-1710, USA
 SOURCE: Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005 (2005), CELL-157. American Chemical Society: Washington, D. C.
 CODEN: 69GQMP
 DOCUMENT TYPE: Conference; Meeting Abstract
 LANGUAGE: English
 AB The move away from metal-based and highly toxic wood preservatives has begun with the shift from arsenicals in the USA and copper-based products in Europe. The future appears to lie in natural and natural-based products. A better understanding of insect biol. as it relates to insecticidal wood preservatives and new preservative designs are helping to develop new treatments. The history of insecticidal chemistries has gone through several generations of development including heavy metals, organophosphates, borates and organo copper, nicotine and pyrethrum derivs., fipronil, combinations of single compds. with boron, performance additives, and newer natural and natural-based products including nootkatone, 2-acetonaphthone, and plant-derived oils. New treatment methods for engineered wood products and testing methodologies and a new method of extraction of wood preservatives for quality control purposes will be presented.

L16 ANSWER 3 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2004:609329 HCPLUS
 DOCUMENT NUMBER: 141:145397
 TITLE: Production of perfume compositions for incorporation to strong alkali preparations
 INVENTOR(S): Oguro, Daichi; Okubo, Yasutaka; Warita, Yasuhiro; Omori, Yoshihiro; Matsui, Masanao
 PATENT ASSIGNEE(S): Hasegawa Koryo Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004211054	A2	20040729	JP 2003-180586	20030625
PRIORITY APPLN. INFO.:			JP 2002-330454	A 20021114

AB Perfume compns. comprising alcs., aldehydes, and/or ketones are treated

with acidic ion exchangers to be incorporated to bleaches and hair dye compns. containing strong alkali oxidants. For example, a perfume composition containing tetrahydrolinalool 10.5, undecylenic aldehyde 0.1, lauric aldehyde 0.2, α -damascone 0.2, geraniol 20, phenylethyl alc. 25, hexylcinnamic aldehyde 5, Me dihydrojasmonate 15, liral 10, Me cedryl ketone 10, and heliotropine 4 %. The perfume composition 40, ethanol 20, and Diaion SK 1B 2 g were mixed at .apprx. 80° for 5 h, cooled, and the ion exchanger was separated out. The composition was washed with a saline solution,

dried using MgSO₄, and added to a hair dye composition

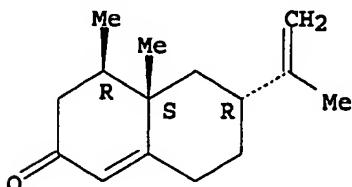
IT 4674-50-4, Nootkatone

RL: COS (Cosmetic use); BIOL (Biological study); USES (Uses)
(acidic ion exchanger-treated perfume compns. for incorporation to bleaches and hair dyes)

RN 4674-50-4 HCPLUS

CN 2 (3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L16 ANSWER 4 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:884528 HCPLUS

DOCUMENT NUMBER: 139:381632

TITLE: Preparation of organic compounds using cyclic imide catalysts

INVENTOR(S): Kitayama, Kenji; Sekiguchi, Kazuya

PATENT ASSIGNEE(S): Daicel Chemical Industries, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

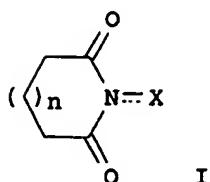
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003321413	A2	20031111	JP 2002-125417	20020426
PRIORITY APPLN. INFO.:			JP 2002-125417	20020426
OTHER SOURCE(S):	MARPAT	139:381632		
GI				



AB Organic compds. are prepared by treatment of organic substrates with catalysts having cyclic imide skeletons I ($n = 0, 1; X = O, OR; R = H$, protective group), wherein oxidation inhibitors are preliminary removed from the substrates by oxidation or column chromatog. Valencene was treated with MnO₂ and oxidized by O in the presence of N-hydroxyphthalimide, Co acetate, Co acetylacetone, and Co(NO₃)₂ in MeCN to give 62% nootkatone.

L16 ANSWER 5 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2002:531810 HCPLUS
 DOCUMENT NUMBER: 137:231677
 TITLE: Use of nootkatone as a senescence indicator for Rouge La Toma Cv. Grapefruit (Citrus paradisi Macf.)
 AUTHOR(S): Biolatto, Andrea; Sancho, Ana M.; Cantet, Rodolfo J. C.; Gueemes, Daniel R.; Pensel, Norma A.
 CORPORATE SOURCE: Instituto Tecnologia de Alimentos Centro de Agroindustrias, Instituto Nacional de Tecnologia Agropecuaria INTA, Buenos Aires, Argent.
 SOURCE: Journal of Agricultural and Food Chemistry (2002), 50(17), 4816-4819
 CODEN: JAFCAU; ISSN: 0021-8561
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The objective of this research was to study the usefulness of nootkatone as a senescence indicator for Rouge La Toma cv. grapefruit (Citrus paradisi Macf.), simulating different treatments that included the normal postharvest handling of citrus fruits: temperature conditioning, cold storage, shipment periods to overseas markets such as Japan and the U.S., marketing conditions, and storage at nonchilling temperature (control treatments). The highest nootkatone levels, determined by GLC-MS analyses, were detected in fruits subjected to control treatments. No significant differences were observed in nootkatone levels between treatments either with or without temperature conditioning prior to the start of the cold storage. Levels of nootkatone increased throughout time for all assayed treatments. The linear regressions of nootkatone levels showed correlation coeffs. of 0.80 and 0.83 with storage time (29 and 42 days, resp.). Therefore, nootkatone appears to be a good indicator of senescence for Rouge La Toma grapefruit.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

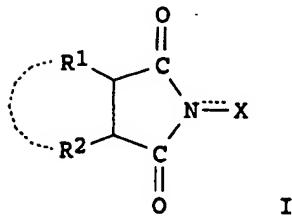
L16 ANSWER 6 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2002:113150 HCPLUS
 DOCUMENT NUMBER: 136:167527
 TITLE: Isolation of nootkatone by inclusion reaction
 INVENTOR(S): Kanehata, Akiko; Akiyama, Takeshi; Nakajima, Kazuomi
 PATENT ASSIGNEE(S): Yasuhara Chemical Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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 JP 2002047239 A2 20020212 JP 2000-269400 20000802
 PRIORITY APPLN. INFO.: JP 2000-269400 20000802
 AB Nootkatone (I) is isolated its mixts. by treatment
 with cyclic compds. for selective formation of inclusion complexes and
 releasing I from the complexes. An orange oil fraction was
 treated with hydroxypropyl- β -cyclodextrin to give I of 79.8%
 purity with apprx. 80% recovery.

L16 ANSWER 7 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:932488 HCPLUS
 DOCUMENT NUMBER: 136:53914
 TITLE: Preparation of conjugated unsaturated carbonyl
 compounds with imides and cobalt salt catalysts under
 mild conditions
 INVENTOR(S): Kitayama, Kenji
 PATENT ASSIGNEE(S): Daicel Chemical Industries, Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001354611	A2	20011225	JP 2000-176494	20000613
PRIORITY APPLN. INFO.:			JP 2000-176494	20000613
OTHER SOURCE(S): GI		CASREACT 136:53914; MARPAT 136:53914		



AB Conjugated unsatd. carbonyl compds., useful as fragrant substances, etc., are prepared by introduction of oxo group to CH₂ group adjacent to C-C double bond in the presence of imides I [R₁, R₂ = H, halo, alkyl, aryl, cycloalkyl, OH, alkoxy, etc.; R₁R₂ may form (N-substituted imide group-containing) double bond, (aromatic) ring; X = O, OH] and Co(II) salts with acids with pK_a ≤ 8.0 as catalysts. Thus, valencene was treated with N-hydroxypthalimide, (AcO)₂Co·4H₂O, and Co(III) acetylacetone under O at 40° for 2 h in MeCN to give 58% nootkatone.

L16 ANSWER 8 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2000:890707 HCPLUS
 DOCUMENT NUMBER: 134:114988
 TITLE: Classification and analysis of citrus oils by NIR
 spectroscopy
 AUTHOR(S): Steuer, B.; Schulz, H.; Lager, E.

CORPORATE SOURCE: Federal Centre for Breeding Research on Cultivated Plants, Institute for Quality Analysis, Quedlinburg, D-06484, Germany

SOURCE: Food Chemistry (2000), Volume Date 2001, 72(1), 113-117
CODEN: FOCHDJ; ISSN: 0308-8146

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new NIRS method is introduced for the determination of valuable components in various citrus oils. Spectra of grapefruit, orange, mandarin, lemon and lime oils in the range from 1100 to 2500 nm have been registered. Applying principal component anal. to the spectral data a good separation of the different fruit oil types can be achieved. The application of multivariate statistics in conjunction with anal. reference data leads to good NIR calibration results. For the main components (e.g. limonene, γ -terpinene, sabinene) and general chemical-phys. parameters (e.g. optical rotation value, aldehyde content) standard errors are in the range of the applied reference method. The multiple coeffs. of determination (R^2) for components with an amount of more than 1.5% are generally >0.95. Furthermore reliable in-process methods for the determination of the individual nootkatone and aldehyde contents during the isolation and purification process from grapefruit and orange oil are presented.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 9 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:321456 HCPLUS

DOCUMENT NUMBER: 132:352791

TITLE: Pharmaceutical suppository composites for fever and influenza and method of producing the composites

INVENTOR(S): Hsu, Wu-ching; Keng, Su-hsien

PATENT ASSIGNEE(S): Taiwan

SOURCE: U.S., 17 pp.
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6063383	A	20000516	US 1999-238744	19990128
PRIORITY APPLN. INFO.:			US 1999-238744	19990128

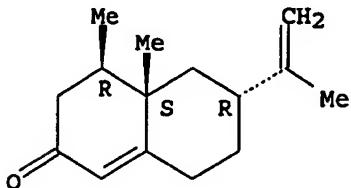
AB Pharmaceutical suppository composites for fever and influenza and a method of producing them are disclosed. More particularly, the composites combine all the advantages of traditional Chinese medicine, Western medicine, and phys. temperature reduction to relieve symptoms of influenza. Poisonous side effects can be avoided by using the disclosed suppositories. The pharmaceutical suppository composites comprise 2750-3250 g radix bupleuri scorzoneraifolium wild, 1750-2250 g flos lonicerae japonicae, 1950-2450 g fructus forsythiae, 1650-2150 g fructus arctii, 2550-3050 g herba schizonepetae, 50-550 g calculus bovis, and 870-1370 g of excipients.

IT 4674-50-4
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
(suppositories containing exts. of Chinese medicines for treatment of fever and influenza)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 10 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:138471 HCPLUS

TITLE: Flavor impact components of grapefruit juice: Processing and maturity changes.

AUTHOR(S): Jella, P.; Rouseff, R.; Goodner, K.

CORPORATE SOURCE: Citrus Research and Education Center, University Florida, Lake Alfred, FL, 33850-2299, USA

SOURCE: Book of Abstracts, 215th ACS National Meeting, Dallas, March 29-April 2 (1998), AGFD-004. American Chemical Society: Washington, D. C.

CODEN: 65QTAA

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

AB Twenty-four flavor impact components were quantified in 40 com. not-from-concentrate grapefruit juices using sulfur chemiluminescence, flame ionization, GC-olfactometry (OSME or CHARM), HPLC and GC/MS/MS. Effect of temperature and time-temperature was determined using pasteurized and unpasteurized (early, mid and late season) juices. Aroma activity decreased due to pasteurization. Increased fruity attributes were observed in late season juices when compared to early season juices. Several aroma components were lost due to thermal processing. Total number and total areas of sulfur peaks decreased with increasing fruit maturity. Heat treatment appeared to have aroma impact. One of these peaks has been identified as p-menthene-8-thiol and the other is yet to be identified. Myrcene, β -caryophyllene and linalool were found to differentiate between juices of various flavor preference while nootkatone was relatively ineffective in differentiating the preference classes. Identifications in addition to qual. and quant. changes in the aroma active components will be presented.

L16 ANSWER 11 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:520920 HCPLUS

DOCUMENT NUMBER: 127:202922

TITLE: Aromatic plants of tropical Central Africa. XXVIII. Influence of cultural treatment and harvest time on vetiver oil quality in Burundi

AUTHOR(S): Dethier, M.; Sakubu, S.; Ciza, A.; Cordier, Y.; Menut, C.; Lamaty, G.

CORPORATE SOURCE: Laboratoire de Technologie, Faculte des Sciences Agronomiques de l'Universite du Burundi, Bujumbura, Burundi

SOURCE: Journal of Essential Oil Research (1997), 9(4),
447-451
CODEN: JEOREG; ISSN: 1041-2905

PUBLISHER: Allured
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Vetiver (*Vetiveria zizanioides* (Stapf.)) is grown in Burundi for its anti-erosive properties. A study to determine the effects of organic manure or a

combination of organic manure and NPK fertilizer was performed. Criteria such as root yield, effect on harvest time, oil yield, oil quality and composition were examined. It was found that soil treatments increased the root yield from 1,500 kg/ha to ca 2,400 kg/ha, while harvest time effected oil quality and yield. Also the khusimol content ranged from 19.4-29.5%, and some oils were judged as having superior quality.

IT 4674-50-4, Nootkatone 15764-04-2,

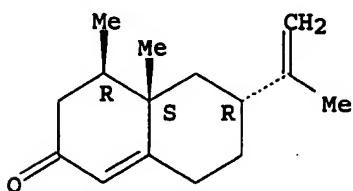
α -Vetivone

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(influence of cultural treatment and harvest time on vetiver oil quality in Burundi)

RN 4674-50-4 HCAPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethylenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

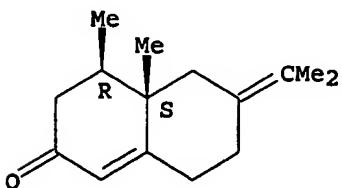
Absolute stereochemistry.



RN 15764-04-2 HCAPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethylenyl)-, (4R,4aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 12 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:597692 HCAPLUS

DOCUMENT NUMBER: 119:197692

TITLE: Influence of ethylene and ethephon on the

sesquiterpene nootkatone production in *Citrus paradisi*
Ortuno Tomas, A.; Garcia-Puig, D.; Sabater, F.;

CORPORATE SOURCE: Porras, I.; Garcia-Lidon, A.; Del Rio, J. A.
 SOURCE: Fac. Biol., Univ. Murcia, Murcia, 30071, Spain
 Journal of Agricultural and Food Chemistry (1993),
 41(10), 1566-9
 CODEN: JAFCAU; ISSN: 0021-8561

DOCUMENT TYPE: Journal
 LANGUAGE: English

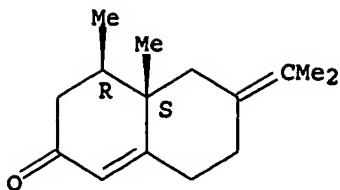
AB The effect of ethylene and ethephon treatments on nootkatone accumulation in the rind of grapefruit was investigated. Considerable increases in the levels of this sesquiterpene were observed in the picked and unpicked grapefruits treated. The changes induced in the maturation-senescence stage of grapefruit by these treatments consisted of an accelerated carotenogenesis process in the rind, along with morphol. changes in the exocarp and ultrastructural changes in the plastids. Thus, ethylene regulates nootkatone biosynthesis by accelerating the maturation-senescence processes in grapefruit rind.

L16 ANSWER 13 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:517591 HCPLUS
 DOCUMENT NUMBER: 117:117591
 TITLE: Deodorant for indoor air treatment
 INVENTOR(S): Mizobuchi, Manabu; Yamauchi, Toshiyuki; Shoji, Shiho
 PATENT ASSIGNEE(S): Matsushita Electric Works, Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04030857	A2	19920203	JP 1990-139378	19900528
PRIORITY APPLN. INFO.:			JP 1990-139378	19900528
AB	A deodorant for removing NH ₃ , amines, and H ₂ S from odorous air in toilets, kitchens, and closed rooms is prepared from plant exts. mainly containing ≥1 compound selected from menthone, cineol, geraniol, vetiverol, vetiverone, β-vetivone, vetivene, 1-menthol, citroneillol, 1-linalool, linalyl acetate, 2-terpineol, and dipentene. Thus, a Forsythia suspensa extract containing 1-linalool, linalyl acetate, and dipentene was dispersed in an			
	EtOH solution to give a formulated deodorant for removing NH ₃ and Me mercaptan from odorous air in a closed container.			
IT	15764-04-2			
	RL: OCCU (Occurrence)	(plant extract containing, for deodorant preparation, for indoor air treatment)		
RN	15764-04-2 HCPLUS			
CN	2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethylidene)-, (4R,4aS)- (9CI) (CA INDEX NAME)			

Absolute stereochemistry.



L16 ANSWER 14 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1991:663037 HCPLUS
 DOCUMENT NUMBER: 115:263037
 TITLE: Volatile constituents of several varieties of pummelos and characteristics among citrus species
 AUTHOR(S): Sawamura, Masayoshi; Shichiri, Kenichi; Ootani, Yoshitaka; Zheng, Xiao Hong
 CORPORATE SOURCE: Fac. Agric., Kochi Univ., Kochi, 783, Japan
 SOURCE: Agricultural and Biological Chemistry (1991), 55(10), 2571-8
 DOCUMENT TYPE: CODEN: ABCHA6; ISSN: 0002-1369
 LANGUAGE: English
 AB Cold-pressed oil (CPO) components from 8 varieties of pummelos were identified and measured. γ -Terpinene was the second major component in 4 varieties, but only a minor component in the others. Cadina-1(10), 6,8-triene was identified by GC-MS in addition to the 63 compds. identified already. Multivariate analyses were applied to 37 kinds of citrus fruits including pummelos and other species. The pummelo was classified into 2 groups by cluster anal., and into 3 groups by principal component anal. on the basis of the oxygenated composition (wt/wt%) in fresh CPOs. The tendency for classification agreed in the two analyses. Nootkatone was the only discriminating component of the pummelo species from others. The results are also discussed in citrus species other than pummelo, being compared with the botanical classifications.

L16 ANSWER 15 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1990:134455 HCPLUS
 DOCUMENT NUMBER: 112:134455
 TITLE: Effect of gibberellic acid and 2-(3,4-dichlorophenoxy)triethylamine on nootkatone in grapefruit peel oil and total peel oil content
 AUTHOR(S): Wilson, Charles W., III; Shaw, Philip E.; McDonald, Roy E.; Greany, Patrick D.; Yokoyama, Henry
 CORPORATE SOURCE: U. S. Citrus Subtrop. Prod. Lab., Winter Haven, FL, 33883-1909, USA
 SOURCE: Journal of Agricultural and Food Chemistry (1990), 38(3), 656-9
 DOCUMENT TYPE: CODEN: JAFCAU; ISSN: 0021-8561
 LANGUAGE: English
 AB The nootkatone content in grapefruit peel oil extracted from flavedo and the peel oil content of fruit receiving preharvest treatment with 20 or 50 ppm gibberellic acid (GA) and/or 50, 125, or 250 ppm 2-(3,4-dichlorophenoxy)triethylamine (DCPTA) were determined. Treatment by GA reduced the rate of increase in nootkatone concentration observed in control fruit with maturation, and the effect was dose-dependent. When DCPTA was used alone as the growth regulator, nootkatone content increased significantly. When 50 ppm GA followed DCPTA treatment

at the 3 levels used above, the effect of GA predominated and nootkatone content was significantly lower than that found in untreated fruit. Treatment by GA generally increased peel oil concentration

L16 ANSWER 16 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:39216 HCAPLUS
 DOCUMENT NUMBER: 110:39216
 TITLE: Preparation of 7,8-didehydronootkatone
 INVENTOR(S): Masuda, Hideki; Kikuiri, Hiromi
 PATENT ASSIGNEE(S): Ogawa and Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63162647	A2	19880706	JP 1986-308395	19861226
PRIORITY APPLN. INFO.:			JP 1986-308395	19861226

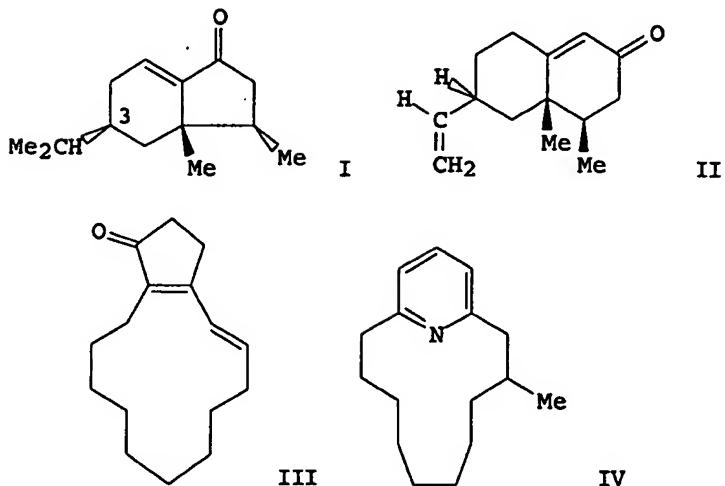
AB Title compound (I), which is a component of flavor of grapefruit and useful as a flavorant for foods and cosmetics (no data), is prepared by oxidative dehydrogenation of nootkatone (II) with 1-1.5 mol equiv chloranil in nonpolar aprotic organic solvents in such a way that .apprx.20% unreacted II exist in the reaction mixts. II (12 g) was treated with 14 g chloranil in MePh at 90° for .apprx.1 h to give 3.5 g 80:20% mixture of I and II, vs. 87:13% mixture of II and 7,8-didehydro-.alpha.-vetivone when AcOEt was used instead of MePh.

L16 ANSWER 17 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1983:177816 HCAPLUS
 DOCUMENT NUMBER: 98:177816
 TITLE: Direct analysis of food aromas
 AUTHOR(S): Labows, John N.; Shushan, Bori
 CORPORATE SOURCE: Monell Chem. Senses Cent., Philadelphia, PA, USA
 SOURCE: American Laboratory (Shelton, CT, United States)
 (1983), 15(3), 56-61
 CODEN: ALBYBL; ISSN: 0044-7749
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB A technique, based on the direct introduction of sample vapors into an atmospheric pressure chemical ionization inlet of a mass spectrometer and using 2 mass spectrometers in tandem, with the 1st mass spectrometer for separation of the volatiles and the 2nd for elucidation of their structure, was successfully applied to determination of volatile substances in fruit and sausages. The detectability limits of representative volatiles were 0.5 ppb for Et butyrate, 0.78 ppb for linalool, and 44 ppb for limonene [138-86-3]. In the 4 types of sausages analyzed, the major volatile compds. were EtoH [64-17-5] (teewurst), PrOH [62309-51-7] (Westphalian sausage), terpenes, alcs., and esters (salami), and Me₂CO [67-64-1] and alcs. (knockwurst). The major volatile compds. of bananas were esters, HOAc [64-19-7], and isoamyl acetate [123-92-2]. Citrus fruits (mangoes, oranges, limes, and lemons) showed the presence of monoterpenes such as limonene and pinene [80-56-8], monoterpene aldehydes such as citral [5392-40-5], and monoterpene alcs. such as terpineol [8000-41-7]. nootkatone [4674-50-4] Was an important flavor compound for grapefruits and oranges.

L16 ANSWER 18 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1982:69232 HCAPLUS
 DOCUMENT NUMBER: 96:69232
 TITLE: Regio- and stereoselective cyclopentannulation with ketones and propargyl alcohol derivatives. Synthesis of dl-nootkatone and dl-muscopyridine
 AUTHOR(S): Hiyama, Tamejiro; Shinoda, Masaki; Saimoto, Hiroyuki; Nozaki, Hitosi
 CORPORATE SOURCE: Dep. Ind. Chem., Kyoto Univ., Kyoto, 606, Japan
 SOURCE: Bulletin of the Chemical Society of Japan (1981), 54(9), 2747-58
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 96:69232
 GI

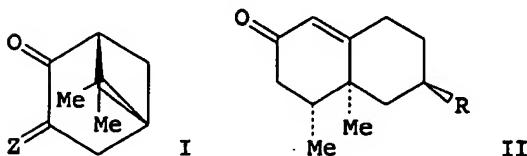


AB A highly regio- and stereoselective five-membered ring annulation involving the acid-treatment of propargyl alc. dianion adducts of ketones is described. The propargyl alc. adduct of 2-octanone was converted into 2-methyl-3-pentyl-2-cyclopentenone by treatment with sulfuric acid-methanol at 0°. As the major product, 1-methylbicyclo[5.3.0]dec-6-en-8-one was produced from 2-methylcycloheptanone. Remarkable regioselective cyclopentannulation was observed in 2-methylcyclohexanone and 2,3-dimethylcyclohexanone wherein 1-methyl- and trans-1,2-dimethyl-substituted bicyclo[4.3.0]non-5-en-7-one (BNO) are produced, resp. With 3-butyn-2-ol, 2-methylcyclohexanone was converted into cis-1,9-dimethyl-substituted BNO. 4-Isopropyl-2-methylcyclohexanone was transformed into a mixture of isopropylbicyclononenone I and its 3 epimer. These results are explained in terms of the conrotatory ring-closure of thermodynamically most favorable hydroxypentadienyl cation intermediates. 3-Methoxycarbonyl-cis-1,9-dimethyl-BNO produced from 4-methoxycarbonyl-2-methylcyclohexanone and 3-butyn-2-ol was successfully transformed into dl-nootkatone (II) by converting the methoxycarbonyl group into isopropenyl of correct stereochem. followed by ring enlargement. Cyclopentannulation using propargyl alc. dianion adducts of 2-cycloalkenones is discussed.

Annulation takes place regioselectively to give conjugated dienones, e.g., bicyclopentadecadienone III from 2-cyclododecenone. This product is led to dl-muscopryidine IV by conjugate 1,6-addition of Me group followed by ring expansion and finally by aromatization with HONH₂.HCl.

L16 ANSWER 19 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

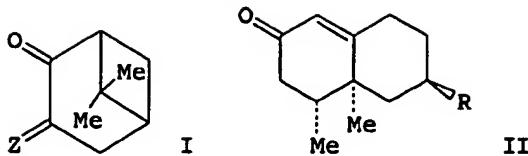
ACCESSION NUMBER: 1980:198554 HCPLUS
 DOCUMENT NUMBER: 92:198554
 TITLE: Highly efficient synthesis of (+)-nootkatone from (-)- β -pinene
 AUTHOR(S): Miyashita, Masaaki; Yanami, Tetsuji; Yoshikoshi, Akira
 CORPORATE SOURCE: Chem. Res. Inst. Non-Aqueous Solutions, Tohoku Univ., Sendai, Japan
 SOURCE: Koen Yoshishu - Tennen Yuki Kagobutsu Toronkai, 22nd (1979), 190-7. Kyushu Univ., Fac. Sci., Dep. Chem.: Fukuoka, Japan.
 DOCUMENT TYPE: Conference
 LANGUAGE: Japanese
 GI



AB trans-3-Ethylidenenopinone [I, Z = (E)-MeCH], obtained by condensation of I (Z = H₂) with MeCHO, was treated with CH₂:CHCH₂SiMe₃ in the presence of TiCl₄ to give the methylbutenyl derivative I (Z = α -H, β -CH₂:CHCH₂CHMe), which was methylated with MeI in the presence of NaNH₂ to give I (Z = α -Me, β -CH₂:CHCH₂CHMe), whose oxidation with Hg(OAc)₂ gave I (Z = α -Me, β -MeCOCH₂CHMe). Cyclization of the diketoné in AcOH-HCl gave the (chloroisopropyl)naphthalenone II (R = CMe₂Cl), which was dehydrochlorinated to give nootkatone (II, R = CMe:CH₂) in 72% yield.

L16 ANSWER 20 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1980:129117 HCPLUS
 DOCUMENT NUMBER: 92:129117
 TITLE: Synthetic study of (+)-nootkatone from (-)- β -pinene
 AUTHOR(S): Yanami, Tetsuji; Miyashita, Masaaki; Yoshikoshi, Akira
 CORPORATE SOURCE: Chem. Res. Inst. Non-Aqueous Solutions, Tohoku Univ., Sendai, 980, Japan
 SOURCE: Journal of Organic Chemistry (1980), 45(4), 607-12
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



AB Condensing (+)-nopolinone with MeCHO followed by acid treatment gave ethylidene-nopolinone I (Z = MeCH) whose treatment with CH₂:CMeCH₂SiMe₃ gave I (Z = α-H, β-CH₂:CMeCH₂CHMe). The last was methylated with MeI-NaNH₂ to give I (Z = α-Me, β-CH₂:CMeCH₂CHMe) whose ozonolysis gave I [Z = α-Me, β-(R)-MeCOCH₂CHMe], reaction of which with HCl gave naphthalenone II (R = CMe₂Cl), whose dehydrochlorination over Al₂O₃ gave (±)-nootkatone II (R = CMe:CH₂).

L16 ANSWER 21 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1973:537301 HCPLUS

DOCUMENT NUMBER: 79:137301

TITLE: Stereoselective approach to eremophilane sesquiterpenes. Synthesis of (+)-nootkatone

AUTHOR(S): Dastur, K. P.

CORPORATE SOURCE: Res. Sch. Chem., Aust. Natl. Univ., Canberra, Australia

SOURCE: Journal of the American Chemical Society (1973), 95(19), 6509-10

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB The bicyclooctane derivative (I, R = CO₂Me), obtained by Diels-Alder reaction of the cyclohexadiene (II) with MeO₂CCH:CH₂ followed by SeO₂ oxidation and Wittig reaction, was treated with MeLi in Et₂O at room temperature to give I(R = CMe₂OH), which in the presence of HCO₂H gave the naphthalene derivative (III, R = CMe₂O₂CH). Refluxing the latter collidine 15 hr in the presence of neutral alumina gave 75% nootkatone (III, R = CMe:CH₂).

L16 ANSWER 22 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1972:72677 HCPLUS

DOCUMENT NUMBER: 76:72677

TITLE: Eremophilane sesquiterpene derivatives

PATENT ASSIGNEE(S): N. V. Chemische Fabriek "Naarden"

SOURCE: Ger. Offen., 25 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2130184	A	19711223	DE 1971-2130184	19710615
NL 7009040	A	19711221	NL 1970-9040	19700619
CH 566954	A	19750930	CH 1971-8960	19710618
US 3835192	A	19740910	US 1971-154960	19710621
PRIORITY APPLN. INFO.:			NL 1970-9040	A 19700619

AB Optically active sesquiterpenes of the nootkatane series were prepared from 2-methylsabenaketone via 5,6-dimethyl-8-isopropyltricyclo[4.4.0.08,10]dec-1-en-3-one (I). Thus 2-methylsabenaketone was treated with NaNH₂, the NH₃ boiled off, and then treated with trans-3-penten-2-one at -20° to give 67.5% I. Treatment of 1 g I with 10 ml 1:1 96% H₂SO₄-H₂O gave 0.6 g 5,6 - dimethyl -8-isopropylbicyclo [4.4.0]deca -1,9 - dien - 3 - one. When HCl-EtOH was used to treat I 7-chloro-8,9-dihydronootkatone was obtained, which was used to prepare some related compds., including 11-chloro-8,9-dihydronootkatone, 11-hydroxy-8,9-dihydronootkatone, and alpha.-vetivone.

L16 ANSWER 23 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:402795 HCPLUS
 DOCUMENT NUMBER: 73:2795
 TITLE: Aldehydes, ketones, and esters in Valencia orange peel oil
 AUTHOR(S): Moshonas, Manuel G.; Lund, Eric D.
 CORPORATE SOURCE: Southern Util. Res. and Develop. Div., Agr. Res. Serv., Winter Haven, FL, USA
 SOURCE: Journal of Food Science (1969), 34(6), 502-3
 CODEN: JFDSAZ; ISSN: 0022-1147

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB A technique previously employed (Hunter, et al., 1965) was applied to the separation and identification of Valencia orange oil compds. It involved distillation of the oil into several cuts, followed by fractionation of each cut on a neutral alumina column, and finally gas-liquid chromatog. anal. of the fractions from the column. The following compds. were detected: hexanal, heptanal, octanal, 6-methyl-5-hepten-2-one, nonanal, trans- and cis-limonene oxide, octyl acetate, citronellal, decanal, undecanal, neral, geranial, dodecanal, carvone, perillyl acetate, perillaldehyde, p-metha-1,8-dien-9-yl acetate, piperitenone, nootkatone, α- and β-sinensal, and 5 unidentified aldehydes.

L16 ANSWER 24 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:121729 HCPLUS
 DOCUMENT NUMBER: 72:121729
 TITLE: Structure of nardostachone
 AUTHOR(S): Pinder, Albert R.
 CORPORATE SOURCE: Dep. of Chem., Clemson Univ., Clemson, SC, USA
 SOURCE: Tetrahedron Letters (1970), (6), 413-15
 CODEN: TELEAY; ISSN: 0040-4039

DOCUMENT TYPE: Journal
 LANGUAGE: English

GI For diagram(s); see printed CA Issue.

AB The structure I was tentatively assigned to (+)-nardostachone (semicarbazone decomposed 230-2°) by spectral and chemical evidence. (+)-Nootkatone (II) treated with (Ph₃P)₃RhCl gave 11,12-dihydronootk atone which upon reaction with N-bromosuccinimide in CCl₄ yielded II i. III dehydrobrominated by heating with γ-collidine gave IV, semicarbazone decomposed 213°. The structure IV was earlier erroneously assigned to nardostachone (Sastry, S. D. et al., 1967).

L16 ANSWER 25 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1969:502047 HCPLUS
 DOCUMENT NUMBER: 71:102047

TITLE: Terpenoids. XV. α -vetivone
 AUTHOR(S): Endo, Katsuya; De Mayo, Paul
 CORPORATE SOURCE: Univ. Western Ontario, London, ON, Can.
 SOURCE: Chemical & Pharmaceutical Bulletin (1969), 17(7),
 1324-31
 CODEN: CPBTAL; ISSN: 0009-2363
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 71:102047
 GI For diagram(s), see printed CA Issue.
 AB The structure of α -vetivone (I) one of the major
 odoriferous principles of vetiver oil was reexamnd. Air oxidation of I in the
 presence of N tert-BuOK yielded, after treatment with
 p-toluenesulfonic acid, a conjugated dienedione. The enantiomeric compound
 was prepared by oxidation, of the structurally well-established eremophilone,
 thus requiring that the structure of I be described as shown. Some
 interesting observations were made with regards O.R.D. and circular
 dichroism measurements in comparison with curves obtained from
 cholest-4-en-3-one. Biogenetic relations between some related compds. are
 also discussed.

L16 ANSWER 26 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1969:481558 HCAPLUS
 DOCUMENT NUMBER: 71:81558
 TITLE: Absolute stereochemistry of ishwarone
 AUTHOR(S): Govindachari, Tuticorin R.; Nagarajan, K.;
 Parthasarathy, P. C.
 CORPORATE SOURCE: Res. Center, C.I.B.A, Bombay, India
 SOURCE: Journal of the Chemical Society [Section] D: Chemical
 Communications (1969), (14), 823
 CODEN: CCJDAO; ISSN: 0577-6171
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB The structures I and II for ishwarone and isoishwarone, resp., were
 confirmed from chemical data. The ethylene acetal of I, m. 82-4°, was
 treated with NaBH4 and then with alkaline H2O2 to give the ethylene
 acetal of III, m. 105-8°, which was deacetylated to III, m.
 172-4°. Retroaldol reaction of III, followed by treatment
 with KOH in HOCH2CH2OH gave (+)-nootkatone.

L16 ANSWER 27 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1969:78180 HCAPLUS
 DOCUMENT NUMBER: 70:78180
 TITLE: Terpenes CIC. Structure of valerenol, a
 sesquiterpenic alcohol of the eremophilane type from
 valerian oil
 AUTHOR(S): Jommi, Giancarlo; Krepinsky, J.; Herout, Vlastimil;
 Sorm, Frantisek
 CORPORATE SOURCE: Univ. Milano, Milan, Italy
 SOURCE: Collection of Czechoslovak Chemical Communications
 (1969), 34(2), 593-600
 CODEN: CCCCAK; ISSN: 0010-0765
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB Valerenol (I), occurring in Valeriana officinalis, shows the same
 stereochemistry as valencene, α -vetivone,
 nootkatone, and nootkatene. Crude I was converted to
 3,5-dinitrobenzoate, m. 148° (hexane), and this, in turn, decomposed

by refluxing with alc. KOH to yield pure I, n_{20D} 1.5117, [α]20D 134° (CHCl₃). Dehydrogenation of I with Se at 340-50° afforded eudalene (picrate m. 91-2°), and oxidation of I with OsO₄ in pyridine-Et₂O gave II, m. 149-50°, [α]20D 32.6° (CHCl₃). Hydrogenation of I over Adams catalyst in AcOH gave dihydrovalerenol, while dehydration with POCl₃ or SOCl₂ in pyridine yielded a mixture of III, d₂₀ 0.9339, n_{20D} 1.5073, [α]20D 141°, and IV, d₂₀ 0.9378, n_{20D} 1.5135, [α]20D 167.5°. Treatment of I with LiBH₄ and BF₃.Et₂O in Et₂O and subsequent oxidation with Na₂Cr₂O₇ in boiling H₂SO₄ afforded V, m. 88-9° (Et₂O-petroleum ether), [α]20D 40.5° (CHCl₃), which yielded with SOCl₂ in pyridine VI, b_{0.01} 135-40°. Hydrogenation of VI and subsequent treatment of the resulting saturated ketone with HSCH₂CH₂SH and BF₃.Et₂O in AcOH gave VII, b_{0.001} 180°, which was refluxed 6 hrs. with Raney Ni in dioxane to yield eremophilane, b₁₅ 140°, [α]20D 36.4°. The ir, ¹H N.M.R., and mass spectra were determined and discussed.

L16 ANSWER 28 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1969:58051 HCPLUS
 DOCUMENT NUMBER: 70:58051
 TITLE: Total synthesis of (+)-nootkatone
 AUTHOR(S): Odom, Homer C.; Pinder, Albert R.
 CORPORATE SOURCE: Clemson Univ., Clemson, SC, USA
 SOURCE: Chemical Communications (London) (1969), (1), 26-7
 CODEN: CCOMA8; ISSN: 0009-241X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB The Michael addition of di-Et malonate to acrylonitrile gave the dinitrile (EtO₂C₂)₂C(CH₂CH₂CN), which was hydrolyzed, decarboxylated, and reesterified to MeO₂CCH(CH₂CH₂CO₂Me)₂. Dieckmann cyclization of the latter comp. gave di-Me 4-oxo-1,3-cyclohexane dicarboxylate, which was methylated to di-Me 3-methyl-4-oxo-1,3-cyclohexanedicarboxylate (I). I was hydrolyzed and decarboxylated to give cis-3-methyl-4-oxocyclohexanecarboxylic acid. This compound was converted to its dithio acetal with HSCH₂CH₂SH and treated with MeLi to give II (X = O). A Wittig reaction with methylenetriphenylphosphorane gave II (X = CH₂), which was hydrolyzed with mercuric ion in MeOH to cis-4-isopropenyl-2-methylcyclohexanone (III). The annulation of III with trans-3-penten-2-one in the presence of NaH gave (+)-nootkatone, m. 45-6°, which was isolated by fractional distillation and column and preparative thin-layer chromatog., and which was identical in spectral and chromatographic properties with a sample of natural (-)-nootkatone.

L16 ANSWER 29 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1968:506902 HCPLUS
 DOCUMENT NUMBER: 69:106902
 TITLE: The total synthesis of racemic nootkatone
 AUTHOR(S): Pesaro, Mario; Bozzato, Giuliano; Schudel, Peter
 CORPORATE SOURCE: Res. Co., Givaudan-Esrolko Ltd., Duebendorf/Zurich, Switz.
 SOURCE: Chemical Communications (London) (1968), 19, 1152-4
 CODEN: CCOMA8; ISSN: 0009-241X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 69:106902
 GI For diagram(s), see printed CA Issue.
 AB dl-Nootkatone (I) was prepared by treating

4-acetyl-1-ethoxycyclohexene with triphenylmethyl-phosphonium iodide in tetrahydrofuran in the presence of BuLi, followed by mild acid hydrolysis. NaOMe catalyzed the condensation of the resulting II ($R = H_2$), b20 102-3°, with HCO_2Et to give II ($R = CHOH$), b0.005 55-60°, which on treatment with MeI in Me_2CO gave a mixture (A) of ketoaldehydes: II ($R = \alpha\text{-Me, } \beta\text{-CHO}$) (III), b0.01 55-65°, and II ($R = \beta\text{-Me, } \alpha\text{-CHO}$) (IV), b0.01 55-65°; and II ($R = CHOMe$). Condensation of III and IV with Me_2CO in the presence of piperidine-HOAc and treatment of the product with MeOH-KOH gave V ($R_1 = R_2 = H$) (VI), m. 39-40°, and VII, b0.01 122-4°, resp., which were separated by crystallization. Reductive methylation of VI with $Li+Me_2Cu-$ in anhydrous Et_2O at 0° gave 85% 4-epinootkatone (VIII), b0.004 75-80°, which on dehydrogenation with 2,3-dichloro-5,6-dicyanobenzoquinone in PhMe gave d1-V ($R_1 = H, R_2 = Me$) (IX), b0.001 100-5°. Condensation of A with $AcCH_2CO_2Me$ in the presence of piperidine-HOAc, followed by treatment with KOH and CH_2N_2 gave V ($R_1 = CO_2Me, R_2 = H$), m. 78-9°, which on methylation gave >80% of a crystalline keto ester (X), m. 94-5°, and traces of its epimer m. 132-3°. X on saponification and decarboxylation gave VIII. X on dehydrogenation, as VIII, gave V ($R_1 = CO_2Me, R_2 = Me$), b0.005 135-40°, which on reduction with $NaBH_4$ in pyridine, saponification, and decarboxylation gave crystalline I, m. 45-6°.

The

uv, ir, and N.M.R. spectra of the intermediate products are given.

L16 ANSWER 30 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1967:516969 HCPLUS
 DOCUMENT NUMBER: 67:116969
 TITLE: Total synthesis of racemic isonootkatone
 $(\alpha\text{-vetivone})$
 AUTHOR(S): Marshall, James A.; Faubl, Hermann; Warne, Thomas M., Jr.
 CORPORATE SOURCE: Northwestern Univ., Evanston, IL, USA
 SOURCE: Chemical Communications (London) (1967), (15), 753-4
 CODEN: CCOMA8; ISSN: 0009-241X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 67:116969
 GI For diagram(s), see printed CA Issue.
 AB I is prepared and used to synthesize compds. of the general formula II and the II are used in the preparation of III($\alpha\text{-vetivone}$). Also prepared is IV. Thus, $Me_2C:C(CO_2Et)_2$ is treated with $LiAlH_4$ to give $Me_2C:C(CH_2OH)_2$, b0.2 78°, which is treated with PBr_3 in ether-hexane-pyridine to give $Me_2C:C(CH_2Br)_2$, and the dibromide is treated with $NaCH(CO_2Et)_2$ to give $Me_2C:C[CH_2CH(CO_2Et)_2]_2$ (V). V is hydrolyzed and the acid is decarboxylated to give $Me_2C:C(CH_2CH_2CO_2H)_2$ which is converted to the di-Me ester, b0.2-0.3 87-95°; and the diester is treated with NaH to give Me 4-isopropylidenecyclohexanone-2-carboxylate (VI), b0.03-0.04 67-75°. VI is treated with trans-pent-3-en-2-ene in the presence of NaOMe(MeOH), addnl. NaOMe is introduced, and the mixture is kept about 18 hrs. at room temperature to give I; a mixture of I, $HOCH_2CH_2OH$, p-MeC₆H₄SO₃H, and C₆H₆ is refluxed to give II ($R = CO_2Me$) (VII). VII is treated with $LiAlH_4$ in ether to give II ($R = CH_2OH$); II ($R = CH_2O_3SMe$) is treated with Li in NH₃-EtOH to give a mixture containing II ($R = CH_2OH$) and II ($R = Me$), and the mixture is hydrolyzed to give III. II ($R = CH_2O_3SMe$) is treated with $LiAlH_4$ in ether to give IV. N.M.R. and uv data are given.

L16 ANSWER 31 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1967:443943 HCPLUS
 DOCUMENT NUMBER: 67:43943
 TITLE: Structure of α -vetivone (isonootkatone)
 AUTHOR(S): Marshall, James A.; Andersen, Niels H.
 CORPORATE SOURCE: Northwestern Univ., Evanston, IL, USA
 SOURCE: Tetrahedron Letters (1967), (17), 1611-15
 CODEN: TELEAY; ISSN: 0040-4039
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB Separation of ketonic components of Haiti oil of vetiver with Girard reagent T and partition of Javanese vetivert acetate between C6H14 and 1:1:5 C5H5N-H2O-MeOH gave vetivones separated from each other and various contaminants by preparative gas chromatog. on a 20% Carbowax 20-M on Chromosorb W at 205° to give α -vetivone (I), C15H22O, (mass spectrum), m. 30-5°, n20D 1.5384, [α]20D 248°, 202° (CHCl3, dioxane), [α]405 570° (dioxane). In addition to the expected signals for vinyl H, Me2C:, and Me-CH groupings at 5.78, 1.70, 0.92 (doublet) (J 6 Hz) ppm., resp., the N.M.R. spectrum showed a prominent 3-proton singlet at 0.91 ppm. but no peak suggestive of a Me substituent on the β -position of an α,β -unsatd. ketone. I treated with Li in NH4OH-EtOH followed by oxidation with CrO3 gave a dihydro- α -vetivone (II). II brominated and spontaneously dehydrobrominated gave the trienone (III), also prepared by treating I with chloranil or 2,3-dichloro-5,6-dicyano-1,4-benzoquinone, and identified as isodehydronootkatone by ir, N.M.R., and uv spectra. The absolute configuration of I was assigned from the published O.R.D. curve (Djerassi, et al., CA 51: 5110a) which shows a pos. Cotton effect. Substitution of the name isonootkatone for α -vetivone is recommended. Uv and ir spectral data were given.

L16 ANSWER 32 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1967:432806 HCPLUS
 DOCUMENT NUMBER: 67:32806
 TITLE: Structure of valerianol, a sesquiterpenic alcohol of eremophilane type from Valeriana oil
 AUTHOR(S): Jommi, Giancarlo; Krepinsky, Jiri; Herout, Vlastimil; Sorm, Frantisek
 CORPORATE SOURCE: Czechoslov. Acad. Sci., Prague, Czech.
 SOURCE: Tetrahedron Letters (1967), (8), 677-81
 CODEN: TELEAY; ISSN: 0040-4039
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB From the essential oil of V. officinalis a new alc., valerianol (I), C15H26O, n20D 1.5117, [α]20D 134° (CHCl3), b0.01 120°; 3,5-dinitrobenzoyl derivative, m. 148°, was isolated. I contained a double bond, OH, Me, and secondary Me groups. Dehydrogenation with S gave eudalene, suggesting the presence of I of eremophilane or selinane carbon skeletons. Treatment of I with OsO4 and C5H5N in Et2O gave the triol (II), m. 149-50°, [α]20D 32.6° (CHCl3), containing >CMe2, \rightarrow CMe, \rightarrow CHMe, and CH2OH groups, and excluding location of the double bond in the selinane skeleton. Dehydration of I with POC13 or SOCl2 or pyrolysis of the dinitrobenzoate gave no conjugated diene and excluded the selinane skeleton. I hydrogenated over prereduced PtO2 gave dihydrovalerianol (III), thus locating the double bond in positions 9,10 or 1,10 on the eremophilane skeleton. Dehydration of I gave a 3:1 mixture

of hydrocarbons (IV and V). IV, C₁₅H₂₄, d₂₀ 0.9339, n_{20D} 1.5073, [α]_{20D} 141°, V, d₂₀ 0.9378, n_{20D} 1.5135, [α]_{20D} 167.5°. I treated with B₂H₆ and oxidized according to Brown and Garg (CA 56: 9983e) gave an oxo alc. (VI), m. 88-9°, [α]_{20D} 40.5° (CHCl₃), not isomerized on refluxing in 5% KOH-MeOH and dehydrated to 2 unsatd. ketones (VII and VIII). VIII hydrogenated over Pd-C in MeOH gave a saturated ketone, converted by treatment with HSCH₂CH₂SH and BF₃.Et₂O in AcOH to give the ethylene thio ketal (IX), m/e 298, base peak m/e 131 and not m/e 173, showing the double bond to be located at position 1,10. The naturally occurring valencene (MacCleod, CA 64: 12730b) and the hydrocarbon from I are identical and provide unequivocal proof of the absolute stereochemistry of I, another member of the family (nootkatone, valencene, and nootkatene) with unusual eremophilane skeleton.

L16 ANSWER 33 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1966:67999 HCPLUS
 DOCUMENT NUMBER: 64:67999
 ORIGINAL REFERENCE NO.: 64:12730b-f
 TITLE: Constitution of nootkatone, nootkatene, and valencene
 AUTHOR(S): MacCleod, William D., Jr.
 CORPORATE SOURCE: U.S. Dept. Agr., Pasadena, CA
 SOURCE: Tetrahedron Letters (1965), (52), 4779-83
 CODEN: TELEAY; ISSN: 0040-4039

DOCUMENT TYPE: Journal
 LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB cf. CA 62, 5808h. The mildly pungent sesquiterpene ketone, nootkatone (I), valued for its contribution to the distinctive flavor of grapefruit, Citrus paradisi has spectral bands at ν 1672, 1620, 1415, 895 cm.⁻¹, λ 237 μμ (ε 17,000). The Me doublet in the N.M.R. spectrum δ 0.9 d (6), 1.1 S, 1.7 t (.apprx.1), 2.1, 4.7 a (.apprx.1), 5.6 S excludes structures lacking the -CHMe- part structure. Oxidation of I with chloranil in hot AcOH gave dehydronootkatone, λ 281 μμ (ε 23,000), N.M.R. spectrum similar to that of I with added peaks centered at δ 6.1 and 6.2. Isomerization in alc. KOH gave isodehydronootkatone, λ 347 μμ (ε 24,000), ν 1415 cm.⁻¹, N.M.R. AB doublets at δ 5.8, 6.4 (10), 1.8. Tetrahydronootkatone (II) brominated in AcOH gave the 3-bromo derivative (III), m. 80-1°, δ 5.3 (J = 11 cycles/sec.) requiring axial orientation of the H-3 and H-4 protons and consequent equatorial orientation of C-4 Me and C-3 Br. III dehydrobrominated in refluxing collidine gave a dihydronootkatone (IV), λ 238 μμ (ε 13,000), N.M.R. showing signals δ 5.6 (.apprx.2), 1.9 (.apprx.2), (1.0, indicating the position of the vinyl Me β to the CO group. The tertiary Me group present in all compds. at C-5 serves to block tautomerism of the dienone (V) to a phenol. IV was isomeric with a hydrogenation product of I, λ 238 μμ (ε 17,000). Both isomers could be reduced to II or oxidized with dichlorodicyanoquinone to V, λ 244 μμ (ε 17,000). The O.R.D. curves of I and II showed pos. Cotton effects similar to those of cholest-4-en-3-one and cholestanone, resp. The amplitude of the curve of II in MeOH diminished markedly suggesting the presence of an equatorial Me group at C-4. Ketone (VI, R = O) submitted to modified Wolff-Kishner reduction gave the corresponding saturated hydrocarbon VI (R = H₂) with ir spectrum and opposite optical rotation of the same magnitude as that of (+)-nootkatone, [α]_D 22°, thus confirming the constitution of I. I oxidized with alkaline H₂O₂ and the nootkatone oxide, m. 47-8°, treated with N₂H₄-alc.-AcOH gave the hydroxydiene, readily dehydrated by treatment with POCl₃ in hot C₅H₅N to a triene,

identical to natural nootkatene (VII). Wolff-Kishner reduction of I yielded valencene (VIII), reconverted to I with tert-Bu2CrO4. I, VII, and VIII are a new and biogenetically interesting series of sesquiterpenes which are exceptions to the isoprene rule, but not to β -orientation of the isopropylene group.

L16 ANSWER 34 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1966:52221 HCPLUS
 DOCUMENT NUMBER: 64:52221
 ORIGINAL REFERENCE NO.: 64:9771g-h,9772a-g
 TITLE: Constituents of *atractylodes*. X. Correlation of hinesol and β -vetivone
 AUTHOR(S): Yoshioka, Ichiro; Kimura, Takeatsu
 CORPORATE SOURCE: Univ. Osaka, Japan
 SOURCE: Chemical & Pharmaceutical Bulletin (1965), 13(12), 1430-4
 CODEN: CPBTAL; ISSN: 0009-2363
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB cf. CA 61, 9533c. Hinesol (I) was proposed (CA 55, 23382i) the structure Ia which was modified to Ib by Chow, et al. (CA 58, 1497d). Oxidation of I with SeO₂ in boiling dioxane for 4 h. gave an oil which gave a pos. 2,4-dinitrophenylhydrazine-H₂SO₄ test, exhibited absolute maximum at 233.5 μ m (log ϵ 3.99) in the uv spectrum, and OH, C:CCHO, CH₂C: in the ir spectrum. These data suggested structure II and hence formula Ib must be preferred over Ia. Oxidation of a solution of 0.7 g. I in 10 mL. pyridine with 1 g. CrO₃ in 10 mL. pyridine and chromatog. of the product on Al₂O₃ gave 0.2 g. unreacted I and 0.38 g. 4-oxohinesol (III), m. 73.5°, [α]D -91.3° (c 3.56, CHCl₃). Structure III was well supported by its uv, ir, and N.M.R. spectra. It was expected that III on dehydration would give a compound of vetivone type. III (216 mg.) was heated with 440 mg. KHSO₄ at 190-210° for 2 h. and the product distilled to give an oil b₅ 160-80° which showed 7 peaks in its gas chromatogram one of which was due to β -vetivone known to have structure IV. Dehydration of 103 mg. III with 0.3 mL. HCO₂H at 120-30° for 1 h. gave a yellow oil, b₂ 110-20°, whose gas chromatogram showed 3 peaks one of which was due to IV. The oil was a mixture and its spectra indicated a mixture of structures expressed as V. The oils in the above 2 reactions could not be purified further. Refluxing 117 mg. III with 2.5 mL. Ac₂O for 4 h. gave 100 mg. 4-oxohinesol acetate (VI), b₃ 150-65°; semicarbazone, m. 178°. Treatment of 101 mg. VI in 2 mL. ether with 0.3 BF₃-etherate at room temperature for 1 h. gave an oil (VII), b₂ 135-40° whose gas chromatogram showed one main peak corresponding to IV and 2 minor peaks. VII was therefore converted into semicarbazone which on recrystn. gave 4-oxo- Δ 9(11)-hinesene semicarbazone (VIII), m. 222°, [α]D 62.2° (c 4.28, HOAc). Hydrolysis of 260 mg. VIII with 260 mg. phthalic anhydride and 30 mL. H₂O under reflux for 9 h. gave 66.5 mg. 4-oxo- Δ 9(11)-hinesene (X), b₃ 140-3°, [α]D 38.03° (c 0.66, EtOH); 2,4-dinitrophenylhydrazone (XI), m. 188-91°. For comparison, IV was obtained from vetiver oil and converted into its 2,4-dinitrophenylhydrazone (XII), m. 188-91°. The ir spectra of X and XI were exactly superimposable on those of IV and XII. However the m.p. of a mixture of XI and XII was depressed (158-62°). The ORD (O.R.D.) curves of X and IV were sym. indicating that X is the enantiomer of IV. This conclusion was further supported by the fact that the rotation of VIII was 62.2° while that of IV semicarbazone is -71.1°. Since the relative configuration of H atoms at C-1 and C-7 of IV and . alpha.-vetivone (XIII) was established by Naves and

Perrottet (CA 35, 47555) as cis and the absolute configuration of C-6 Me as S by Sorm, it was concluded that hinesol must be 1S, 6S, 7S as in XIV or 1R, 6S, 7R as in XV. Also α -vetivone and β -vetivone must be represented as XIII and IV, resp.

L16 ANSWER 35 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1963:409156 HCPLUS
 DOCUMENT NUMBER: 59:9156
 ORIGINAL REFERENCE NO.: 59:1691a-g
 TITLE: The chemistry of the natural order Cupressales. XLVI.
 The structure of nootkatone
 AUTHOR(S): Erdtman, Holger; Hirose, Yoshiyuki
 CORPORATE SOURCE: Kungl. Tek. Hogskolan, Stockholm
 SOURCE: Acta Chemica Scandinavica (1962), 16, 1311-14
 CODEN: ACHSE7; ISSN: 0904-213X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB A new sesquiterpene ketone, nootkatone, has been isolated from the neutral fraction of the acetone extract of Chamaecyparis nootkatensis by two methods. The neutral fraction from 28 kg. heartwood (370 g.) was distilled through a fractionating column and the fractions b. 156-8°/5 mm. were redistd. through a spinning band column. Series of fractions boiling between 154 and 155° were obtained, the optical rotation of which varied from $[\alpha]D$ 91° to 148°. They were dissolved in 6 times their volume of EtOH and treated with NaOAc and semicarbazide-HCl to give 25 g. crystals, which gave 15 g. pure nootkatone semicarbazone. A mixture of the latter with 15 g. Bz2O and 45 ml. H2O was steam distilled and the distillate extracted with ether to give 5 g. nootkatone (I) as an oil, m. 36-7°, $[\alpha]D$ 195.5° (c 1.5, CHCl3), λ 238 μm (ϵ 15,000), ν 1680 cm.-1, and the formula C15H22O. In the second method, the fraction b5 155-180° (105 g.) and 16 g. Girard P reagent were dissolved in 300 ml. EtOH containing 30 g. HOAc and refluxed 40 min. After cooling it was poured into 2 l. H2O containing 27 g. Na2CO3 and the mixture extracted with ether to give 10 g. of a brownish oil which crystallized from petr. ether to give pure I; I semicarbazone m. 195-7°; 2,4-dinitrophenylhydrazone m. 157.5°. The ultraviolet and infrared spectra of I clearly showed that I is an α,β -unsatd. ketone and is thought to have the structure given. The ozonization of 118 mg. I in 20 ml. CH2Cl2 gave only HCHO isolated as its dimedon derivative but no acetone was isolated. I (51.9 mg.) in EtOH in the presence of Pd-C was hydrogenated to give tetrahydronootkatone (II) as a viscous oil; its semicarbazone m. 210-11° (decompn), $[\alpha]D$ 66.5° (c 0.09, CHCl3). In the presence of Adams catalyst 120 mg. I was hydrogenated to give a product, which after chromatography gave 30% oil and 70% crystals. The latter, tetrahydronootkatol (III), m. 76.5-77°, $[\alpha]D$ 13.9° (c 2.2, CHCl3). Oxidation of 320 mg. III in 5 ml. pyridine with 400 mg. CrO3 in 5 ml. pyridine overnight gave a liquid, b6 152°, nD 1.4886, $[\alpha]D$ 54.1° (c 2.4, CHCl3), whose semicarbazone was identical with that of II. A sample of II prepared by oxidation of III was purified by ozonizing the unsatd. impurities and had $[\alpha]D$ 19.2°. Reduction of 300 mg. I in 5 ml. MeOH with 300 mg. KBH4 overnight gave 300 mg. of a viscous, uncyclizable oil. The latter was heated with 300 mg. Se 12 hrs. to give eudalene isolated as its picrate. To locate the CO group, 1.3 g. II in 5 ml. ether was treated with MeMgBr prepared from 0.2 g. Mg and 1.5 g. MeI in 5 ml. ether. After keeping overnight, it gave 0.9 g. of a pale yellow alc., ν 3620 cm.-1, with no CO band. On heating this alc. with Se at

330° 30 hrs. it gave 0.4 g. liquid; picrate m. 104-6°; trinitrobenzene adduct m. 121-2°. These were identical with the corresponding derivs. of 1,3-dimethyl-7-isopropylnaphthalene. The proton magnetic resonance spectrum of I in CCl₄ showed a signal at 62 cycles/sec. due to a single proton on a double bond. The low frequency is due to the proton being next to a CO group. A signal at 103 cycles/sec. was due to 2 H atoms on terminal methylene group of isopropenyl group. Three sharp lines at 250, 223, and 207 cycles/sec. corresponded to three Me groups of which the last is due to a Me group in the system of the type COCH: CMe. All these facts favor structure I. The configuration at C7 is not known with certainty. It is present as β in eudesmol and the phys. properties of I suggest it to be similarly oriented in I. If it is correct, the Me group at C4 and the OH at C2 in III should be β-oriented, hydrogenation occurring at the least hindered side.

L16 ANSWER 36 OF 37 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1939:41328 HCPLUS
 DOCUMENT NUMBER: 33:41328
 ORIGINAL REFERENCE NO.: 33:5832b-h
 TITLE: Volatile plant constituents. X. The vetivones, odorous constituents of the essential oils of vetiver
 St. Pfau, Alexander; Plattner, Pl. A.
 AUTHOR(S): Helvetica Chimica Acta (1939), 22, 640-54
 SOURCE: CODEN: HCACAV; ISSN: 0018-019X
 DOCUMENT TYPE: Journal
 LANGUAGE: Unavailable
 AB C. A. 33, 4960.3. The use of phenylhydrazinesulfonic acid or of acetylhydrazinopyridinium chloride (cf. Girard and Sandulesco C. A. 31, 1006.4) to isolate the ketones from essential oil of vetiver did not prove satisfactory. A ketonic fraction (254 g.) of oil of vetiver, b₄ 152-60° and containing 81.5% C₁₅H₂₂O according to oxime anal., gave 255.3 g. of crude semicarbazone (97.6% yield). Fractional crystallization of the crude semicarbazone yields the semicarbazone of β-vetivone, C₁₆H₂₅ON₃ (I), m. 228-9°, [α]_D20° -71°, soluble in AcOH without color and a light d-rotatory powder, soluble in AcOH with yellow color. Fractional crystalline of this powder from EtOH yields the semicarbazone of α -vetivone, C₁₆H₂₅ON₃ (II), m. 210-12° (decomposition), [α]_D20° 316°, and a mixture of semicarbazones, [α]_D20° 120 to +160°. The ketone fraction from oil of vetiver varies from about 20 to 90% and the yield of β-vetivone from 2 to 49%. Refluxing 110 g. I, 230 g. phthalic anhydride and 800 mL. water for 12 h., neutralizing and extracting with Et₂O gave 65 g. (82% theory) β-vetivone oil, b₁₀ 175°, and II gave similarly α -vetivone. Crystallization of β-vetivone oil from petr. ether gave a poor yield of β-vetivone (III), m. 44-4.5°, [α]_D20° -24.1°. III forms no bisulfite compound III (20 g.), 20 g. KOH, 0.5 g. CuSO₄ and 20 mL. water heated by the Kijner-Wolff method gave 6.5 g. C₁₅H₂₄, b_{2.5} 110-2°, d₂₀ 0.9244, n_D20 1.5116. When 50 g. III was treated repeatedly with Al and iso-PrOH it gave 5.5 g. of C₁₅H₂₂, b_{3.6} 110°, d₂₀ 0.9277, n_D20 1.5277. Reduction of 65 g. III with alc. and Na gave a distillate which partly solidified and these crystals, recrystd. from acetone and petr. ether and sublimed under reduced pressure, gave β-dihydrovetivol, m. 103.5°. Catalytic hydrogenation of III gave a β-dihydrovetivol (IV), m. 107°; dinitrobenzoate, m. 121° and remelts at 129.5-30°. Probably catalytic hydrogenation gave a single stereoisomer and reduction with Na a mixture Some β-dihydrovetivone (dibenzylidene derivative, m. 130.5-1.5°) was also formed as a byproduct of catalytic hydrogenation. Catalytic

hydrogenation of IV gave β -tetrahydrovetivol (V), m. 76-6.5°; dinitrobenzoate, m. 144-4.5°. V is also obtained by direct hydrogenation of III. Oxidation of V with Cr₂O₃ and AcOH gave β -tetrahydrovetivone m. 37.5-8° (dibenzylidene derivative m. 101.5-2°). Reduction of 10.4 g. of mixed ketones obtained from the d-rotatory semicarbazones with Na and alc. gave a mixture of dihydroisovetivols, C₁₅H₂₆O, b₄ 153°, d₂₀ 0.9858, n_{D20} 1.5159, α_D 24.40°. The odor of the oil of vetiver is due principally to the ketonic sesquiterpenes, C₁₆H₂₂O, (bicyclic and α -ethylenic) of which only α -vetivone and β -vetivone have so far been isolated. Their derivs. so far prepared have little if any odor.

L16 ANSWER 37 OF 37 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1939:38241 HCAPLUS

DOCUMENT NUMBER: 33:38241

ORIGINAL REFERENCE NO.: 33:5384e-h

TITLE: Ketones of oil of vetiver

AUTHOR(S): Sabetay, Sebastien; Trabaud, Lucien

SOURCE: Bull. soc. chim. (1939), 6, 740-3

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB The structure of the principal constituents of oil of vetiver (I) is unknown. I contains 60% of vetiverols (II), C₁₅H₂₄O. The corresponding aldehydes are unknown and the presence of the ketones is disputed. By application of the methods of Girard and Sandulesco (C. A. 31, 1006.4) ketone fractions have been isolated from authentic Bourbon vetiver. Treatment of 500 g. I in 1.5 l. alc. and 75 g. AcOH with 75 g. of Girard reagent P gave 11.6% of crude ketone, n_{D20} 1.5319, d₄₁₅ 1.0038, α 71.20°, containing 84.8% of vetiverone (III). Distillation in vacuo gave a principal fraction, b₁₄ 138-48°, of which 20 g. was converted into 21 g. of crude semicarbazone from which was regenerated 5 g. of the sesquiterpenic ketone III, C₁₅H₂₂O, b₁₂ 142-50°, n_{D20} 1.5252, d₄₁₅ 1.002, α 74° (10 cm.), giving brownish red and violet colors with SbCl₃ and Br in AcOH; semicarbazone, m. 210°. Similarly a Java vetiver gave a sample of II, b₂₀ 150-5°, n_{D20} 1.5355, d₄₁₅ 1.001, α 80.40° (10 cm.); semicarbazone, m. 210°. Oxidation of 45 g. II (free from III) with 60 g. K₂Cr₂O₇ and 50 g. H₂SO₄ in 300 cc. H₂O yielded 12 g. of crude vetiveral, b₁₀ 138-45°, n_{D20} 1.5132, d₄₁₅ 1.003, α 40.55° (10 cm.), containing 64.1% of vetiveral, C₁₅H₂₂O (as determined by oximation).

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=> => d stat que l24
L1      33 SEA FILE=REGISTRY ABB=ON PLU=ON NOOTKATON?
L2          SEL PLU=ON L1 1- CHEM :      100 TERMS
L3      492 SEA FILE=HCAPLUS ABB=ON PLU=ON L2
L4      492 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 OR NOOTKATON?
L5      7087 SEA FILE=HCAPLUS ABB=ON PLU=ON (TICKS/CV OR ACARI/CV) OR
          TICK OR ACARI OR ANTITICK? OR ANTIACARI?
L6       6 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 AND L5
L7     194193 SEA FILE=HCAPLUS ABB=ON PLU=ON PESTICIDES/CV OR ACARICIDES/CV
          OR INSECTICIDES/CV OR RODENTICIDES/CV REPELLENTS/CV OR
          PESTICIDE OR INSECTICIDE OR RODENTICIDE OR REPELLENT
L8      16 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4 AND L7) NOT L6
L9     4916981 SEA FILE=HCAPLUS ABB=ON PLU=ON MATERIAL OR SOIL OR POLYMER?
          OR DIATOMACEO? OR DIATOMITE OR SAND OR CELLULOSE
L10     34 SEA FILE=HCAPLUS ABB=ON PLU=ON L4(L)L9
L11     28 SEA FILE=HCAPLUS ABB=ON PLU=ON L10 NOT (L6 OR L8)
L15     42 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4(L)(TREAT? OR APPLY OR
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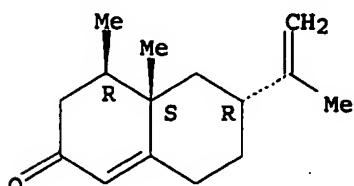
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 ROOT OR ALUMIN? OR SILICA OR CLAY OR SOLID(W)SUBSTANC?)) NOT
 (L6 OR L8 OR L11 OR L16)
 L24 16 SEA FILE=HCAPLUS ABB=ON PLU=ON L23 AND PD=<AUGUST 17, 2001

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L24 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2000:467347 HCAPLUS
 DOCUMENT NUMBER: 133:149649
 TITLE: Characteristic flavor compound in peel oil of lime
 AUTHOR(S): Yang, Ronghua
 CORPORATE SOURCE: Department of Food Science + Engineering, Hangzhou
 Commercial College, Hangzhou, 310035, Peop. Rep. China
 SOURCE: Shipin Yu Fajiao Gongye (2000), 26(3), 31-34
 CODEN: SPYYDO; ISSN: 0253-990X
 PUBLISHER: Shipin Yu Fajiao Gongye
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese
 AB The characteristic flavor compds. in peel oil of lime were studied by
 solution extraction and silica gel column. Twenty-five compds.
 including geraniol, neral, linalool and aliphatic aldehydes were selected as
 the components contributed to the aroma of the peel oil.
 IT 4674-50-4, Nootkatone
 RL: BOC (Biological occurrence); BSU (Biological study, unclassified);
 BIOL (Biological study); OCCU (Occurrence)
 (characteristic flavor compound in peel oil of lime)
 RN 4674-50-4 HCAPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-
 methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1993:58289 HCAPLUS
 DOCUMENT NUMBER: 118:58289
 TITLE: Characterization of grapefruit oil and juice by HPLC
 AUTHOR(S): Schulz, Hartwig; Albroscheit, Gerd; Nowak, Dieter
 CORPORATE SOURCE: Dragoco, Gerberding und Co., Holzminden, W-3450,
 Germany
 SOURCE: Zeitschrift fuer Lebensmittel-Untersuchung und
 -Forschung (1992), 195(3), 254-8
 CODEN: ZLUFAR; ISSN: 0044-3026
 DOCUMENT TYPE: Journal

LANGUAGE: German
 AB A rapid HPLC method for the determination of the flavor compound neootkatone
 (I) in

grapefruit oils and juices is described; the method also permits the detection of relevant coumarins and furocoumarins important for product quality evaluation. The oil is dissolved in hexane, cleaned-up on Bakerbond silica gel columns, eluting with MeOH for subsequent anal.; juices are extracted with EtOAc and the exts. are analyzed directly following solvent removal. Coumarin and furocoumarin detections require alc.-KOH refluxing, Et₂O extraction, and preparative liquid chromatog.

isolation

before HPLC characterization. Nootkatone, coumarin and furocoumarin were chromatographed on Hypersil ODS columns with H₂O-MeOH gradient elution and a diode array detection system. Nootkatone was detected at 240 nm, and coumarin and furocoumarin at 310 nm. The determination limit was 0.05% for nootkatone, with linearity for 0.1-1 mg/mL. Seven coumarins and furocoumarins were identified by NMR, mass spectroscopy, and combined chromatog.-MS techniques; relevant MS data are given.

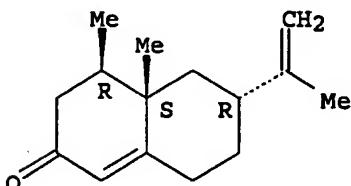
IT 4674-50-4, Nootkatone

RL: ANT (Analyte); ANST (Analytical study)
 (determination of, in grapefruit juice and oil, by HPLC)

RN 4674-50-4 HCPLUS

CN 2 (3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 3 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:648544 HCPLUS

DOCUMENT NUMBER: 117:248544

TITLE: Chemical constituents of volatile oil of Vladimiria soulier (Franch.) Ling

AUTHOR(S): Li, ZhaoLin; Xue, Dunyuan; Wang, Mingkui; Chen, Yaozu

CORPORATE SOURCE: Instrum. Anal. Res. Cent., Lanzhou Univ., Lanzhou,
 730000, Peop. Rep. China

SOURCE: Lanzhou Daxue Xuebao, Ziran Kexueban (1991),
 27(4), 94-7

CODEN: LCTHAF; ISSN: 0455-2059

DOCUMENT TYPE: Journal

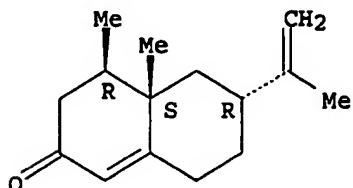
LANGUAGE: Chinese

AB The volatile oil of the root of Vladimiria soulier (Franch.) Ling was obtained by simultaneous distillation-extracting device from its dry root. The oil yield is 0.8%. The phys. and chemical consts. were determined and its chemical constituents have been analyzed by gas chromatog./mass

spectrometry. Twenty-six components, constituting 75.41% of the oil, were identified by GC/MS. A colorless crystal was obtained by column chromatog. following recrystn., which was confirmed as dehydrocostus lactone. Thus, the major constituents of volatile oil of V. soulier is

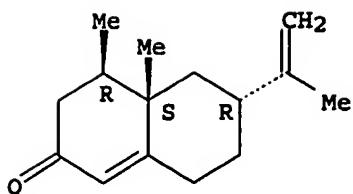
dehydrocostus lactone.
 IT 4674-50-4, Nootkatone
 RL: BIOL (Biological study)
 (from Vladimiria soulier root volatile oil)
 RN 4674-50-4 HCAPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1992:547205 HCAPLUS
 DOCUMENT NUMBER: 117:147205
 TITLE: Biosynthesis of the constituents of vetiver oil II.
 Nootkatane and eudesmane compounds
 AUTHOR(S): Akhila, Anand; Thakur, Raghunath S.
 CORPORATE SOURCE: Cent. Inst. Med. Aromatic Plants, Lucknow, 226 016,
 India
 SOURCE: Proc. - Int. Congr. Essent. Oils, Fragrances Flavours,
 11th (1989), Volume 5, 143-50. Editor(s):
 Bhattacharyya, S. C.; Sen, N.; Sethi, K. L. Oxford &
 IBH: New Delhi, India.
 CODEN: 570QAS
 DOCUMENT TYPE: Conference
 LANGUAGE: English
 AB [3RS;2-14C]MVA was incorporated into bicyclic sesquiterpenes of *Vetiveria zizanioides* in 4 + 10-3 to 6 + 10-3% yield. The roots of *V. zizanioides* which were fed with [2-14C; 4R-3H1]MVA and the isotope ratios in the compds. of nootkatane group such as isovalencenol, alpha.-vetivone, isovalencenic acid, nootkatene, valencene, nootkatone, 7-epi-nootkatone, beta-vetivene, gamma-vetivene, bicyclovetivenol and valerianol suggest that a proton loss was followed by a 1,2-Me shift and a 1,2-hydrogen shift. A simple elimination reaction of a proton (electrophile) and an enzyme (nucleophile) takes place during the formation of iso-Pr or di-Me allyl grouping in the compds. of this group. On the other hand, 2 1,2-hydrogen shifts are observed, during the formation of levojunenol and a proton loss is followed by a 1,2-hydrogen shift in vetiselinene, isovetiselinol, vetiselinol, and delta-selinene.
 IT 4674-50-4, Nootkatone 15764-04-2,
 alpha-Vetivone 34181-41-4
 RL: PROC (Process)
 (biosynthesis of, in *Vetiveria zizanioides*, from mevalonate, oil composition in relation to)
 RN 4674-50-4 HCAPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

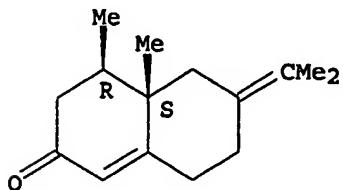
Absolute stereochemistry.



RN 15764-04-2 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethyldene)-, (4R,4aS)- (9CI) (CA INDEX NAME)

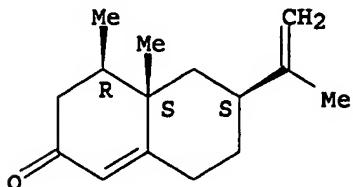
Absolute stereochemistry.



RN 34181-41-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, [4R-(4a,4a,6a)]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 5 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:262270 HCPLUS

DOCUMENT NUMBER: 116:262270

TITLE: Analysis of vetiver essential oil by supercritical fluid extraction and on-line capillary gas chromatography

AUTHOR(S): Blatt, Celso R.; Ciola, Remolo

CORPORATE SOURCE: Instr. Cient. CG LTDA, Sao Paulo, 04603, Brazil

SOURCE: Journal of High Resolution Chromatography (1991), 14(11), 775-7

CODEN: JHRCE7; ISSN: 0935-6304

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Vetiver oil was obtained by both supercrit. fluid and steam distillation extraction

of the plant roots. Capillary gas chromatog. was performed on a silica column coated with poly(dione siloxane) or CG-FN-193 (siloxane) with flame ionization detection. Extraction at lower pressures resulted in a high recovery of sesquiterpene hydrocarbons and low recovery

of oxygenated compds. At higher pressures, the reverse was the case. The supercrit. fluid extraction method was more efficient than the steam distillation method.

IT 15764-04-2, α -Vetivone

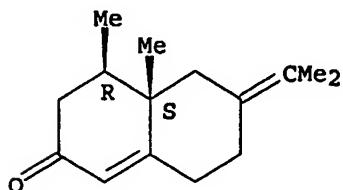
RL: BIOL (Biological study)

(of vetiver oil, supercrit. fluid extraction and capillary gas chromatog. in study of)

RN 15764-04-2 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethyldene)-, (4R,4aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 6 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1991:628369 HCPLUS

DOCUMENT NUMBER: 115:228369

TITLE: Chemical composition of volatile oil of Patrinia heterophylla Bge

AUTHOR(S): Li, Zhaolin; Zhu, Jialiang; Chen, Ning; Chen, Yaozu

CORPORATE SOURCE: Anal. Test. Cent., Lanzhou Univ., Lanzhou, 730000, Peop. Rep. China

SOURCE: Gaodeng Xuexiao Huaxue Xuebao (1991), 12(2), 213-15

DOCUMENT TYPE: CODEN: KTHPDM; ISSN: 0251-0790

LANGUAGE: Journal

Chinese

AB The volatile oil of P. heterophylla root was obtained by simultaneous steam distillation-solvent extraction. The yield of the oil was 0.63%.

Its chemical composition was studied by capillary gas chromatog.-mass spectrometry. Over 50 components were separated, of which 30 compds. composing 56.32% of the oil were identified. The major component, isovaleric acid, was separated by distillation under reduced pressure and identified

by MS, IR and NMR.

IT 4674-50-4, Nootkatone

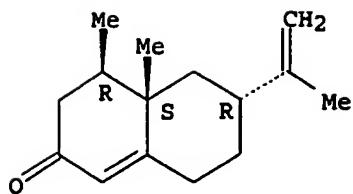
RL: BIOL (Biological study)

(from Patrinia heterophylla root volatile oil)

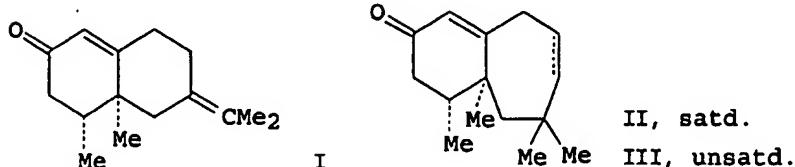
RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 7 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1990:164706 HCPLUS
 DOCUMENT NUMBER: 112:164706
 TITLE: Resinoid and essential oil of Vetiver
 AUTHOR(S): Retamar, J. A.; Elder, H. V.
 CORPORATE SOURCE: Inst. Invest. Prod. Nat., Anal. Sint. Org., UNL, Santa Fe, 3000, Argent.
 SOURCE: Essenze, Derivati Agrumari (1989), 59(1), 44-50
 DOCUMENT TYPE: CODEN: EDAGAH; ISSN: 0014-0902
 LANGUAGE: Journal
 GI English



AB α - (I) and β -vetivone, vetivenol, and vetivenyl vetivenate were the main constituents of the vetiver oil obtained by cohabitation in a yield of 1.5%. Expansion and contraction of the I rings gave isomeric structures (II and III). Also, catalytic dehydration and dehydrogenation gave azulene structures. The oil had a hot and deep note with a great persistence. The resins (dried root exts.) had these characteristics in a higher degree.

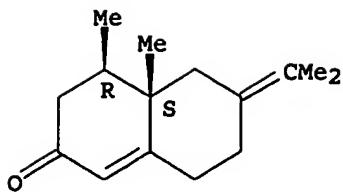
IT 15764-04-2, α -Vetivone

RL: BIOL (Biological study)
 (of vetiver root oil and resin)

RN 15764-04-2 HCPLUS

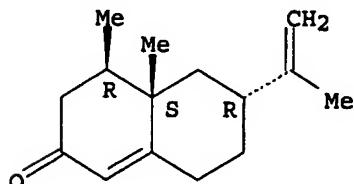
CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethyldene)-, (4R,4aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 8 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1989:113410 HCPLUS
 DOCUMENT NUMBER: 110:113410
 TITLE: Studies on the essential oils of pummelo. Part II.
 Changes in the volatile constituents of pummelo
 (*Citrus grandis* Osbeck forma *Tosa-bun tan*) during
 storage
 AUTHOR(S): Sawamura, Masayoshi; Tsuji, Tetsuya; Kuwahara, Shigeru
 CORPORATE SOURCE: Dep. Agric. Chem., Kochi Univ., Kochi, 783, Japan
 SOURCE: Agricultural and Biological Chemistry (1989
), 53(1), 243-6
 CODEN: ABCHA6; ISSN: 0002-1369
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Changes in the volatile constituents of cold-pressed oil from pummelo
 during storage between Dec 10 and May 6 the following year were determined by
 silica gel column chromatog. Increases in terpene hydrocarbons
 and nootkatone were observed during storage, and the latter is
 considered as an indicator of best harvest time and postharvest ripening.
 IT 4674-50-4, Nootkatone
 RL: BIOL (Biological study)
 (of pummelo oil, fruit storage effect on)
 RN 4674-50-4 HCPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-
 methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



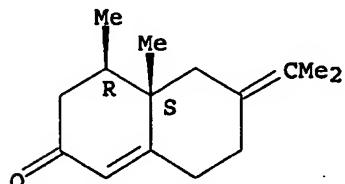
L24 ANSWER 9 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1988:587488 HCPLUS
 DOCUMENT NUMBER: 109:187488
 TITLE: Enhanced productivity of the essential oil in the
 artificial autopolyploid of vetiver (*Vetiveria*
zizanioides L. Nash)
 AUTHOR(S): Lavania, U. C.
 CORPORATE SOURCE: Cent. Inst. Med. Aromatic Plants, Lucknow, 226016,
 India
 SOURCE: Euphytica (1988), 38(3), 271-6
 CODEN: EUPHAA; ISSN: 0014-2336

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Artificial autotetraploids were produced by colchicine treatment in the important essential oil bearing vetiver ($2n = 20$). The raw tetraploids were stabilized by selection for pure types in segregating vegetative progeny. The tetraploids were vigorous with thicker and longer roots. The performance data recorded on the 17-mo-old crop of the tetraploid taken in conjunction with diploid parent and the best available check, exhibited distinct superiority of the tetraploid. In terms of economic yield the tetraploid has the potential of producing 62.5% and 39.2% more oil over the diploid parent and the check, resp. Although there was marginal improvement in root biomass, significant improvement was registered for percent oil content. The tetraploid produced 1.4% oil in freshly harvested roots compared to 0.98% and 1.15% in the control and check, resp. Thus, induced tetraploidy can be used in attaining rapid genetic improvement even for the characters associated with the secondary metabolism

IT 15764-04-2, α -Vetivone
 RL: BIOL (Biological study)
 (in *Vetiveria zizanioides*, tetraploidy induction in relation to)
 RN 15764-04-2 HCAPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethyldene)-, (4R,4aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1988:19239 HCAPLUS
 DOCUMENT NUMBER: 108:19239
 TITLE: Volatile compounds in peel oil of Shiroyanagi navel
 AUTHOR(S): Sugisawa, Hiroshi; Yang, Rong Hua; Matsuo, Toshimasa;
 Tamura, Hirotoshi
 CORPORATE SOURCE: Dep. Bioresour. Sci., Kagawa Univ., Miki, 761-07,
 Japan
 SOURCE: Nippon Nogei Kagaku Kaishi (1987), 61(9),
 1101-6
 CODEN: NNNKAA; ISSN: 0002-1407
 DOCUMENT TYPE: Journal
 LANGUAGE: Japanese

AB The essential oil of Shiroyanagi navel (*Citrus sinensis* cv Shiroyanagi) was obtained from the peel by simultaneous distillation-extraction, and separated into fractions of hydrocarbon and oxygenated compds. through a silica gel column. Both fractions were analyzed by combined capillary gas-chromatog.-mass spectrometry (GC/MS). Sixty-eight compds., including 9 hydrocarbons, 20 alcs., 20 aldehydes, 9 esters, 2 phenols, 4 ethers, and 4 ketones, were identified by GC/MS and Kovats Indexes. As the oxygenated fraction had the characteristic aroma of the oil, this fraction was further separated into 4 fractions, and then examined by GC/MS and GC-sniffing. The compositional characteristic of this oil was a large amount of terpene

aldehyde compared with peel oils of other sweet oranges in Japan.

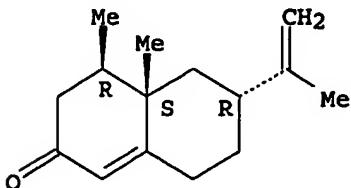
IT 4674-50-4, Nootkatone

RL: BIOL (Biological study)
(in peel oil of *Citrus sinensis*)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R) - (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 11 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1987:514417 HCPLUS

DOCUMENT NUMBER: 107:114417

TITLE: Terpene reduction in cold-pressed orange oil by frontal analysis-displacement adsorption chromatography

AUTHOR(S): Ferrer, O. J.; Matthews, R. F.

CORPORATE SOURCE: Food Sci. Hum. Nutr. Dep., Univ. Florida, Gainesville, FL, 32611, USA

SOURCE: Journal of Food Science (1987), 52(3), 801-5
CODEN: JFDSAZ; ISSN: 0022-1147

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Five adsorbents were studied for their ability to remove terpenes from cold-pressed Valencia orange oil by frontal-anal. displacement adsorption chromatog. Only the potable solvent 95% aqueous EtOH was used in the process; columns were dry-packed to eliminate the use of hexane. The most successful columns were silica gel and Florisil. Adsorptive capacities of 4.4 and 2.0 g oil/g adsorbent were achieved for silica gel and Florisil, resp. Compsns. of the oil fractions were determined by gas chromatog. and peaks identified by mass spectrometry. Silica gel provided products with the lowest terpene level and the highest oxygenated compound content. The terpene content of the product considered best was reduced to one-fifth and one-seventh of the original level for Florisil and silica gel, resp., and had higher oxygenated compound levels than either 10-fold or 25-fold orange oil concs.

IT 4674-50-4, Nootkatone

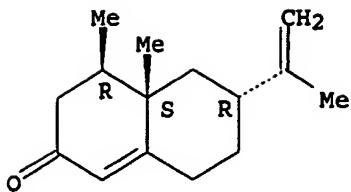
RL: BIOL (Biological study)

(of orange oil, terpene hydrocarbons separation from, by adsorption column chromatog.)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R) - (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1986:147331 HCAPLUS

DOCUMENT NUMBER: 104:147331

TITLE: Analysis of Cuban grapefruit peel oil

AUTHOR(S): Correra, M.; Tapanes, R.; Pino, J.

CORPORATE SOURCE: Natl. Cent. Sci. Res., Havana, Cuba

SOURCE: Acta Alimentaria (1985), 14(4), 303-8

CODEN: ACALDI; ISSN: 0139-3006

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cold-pressed grapefruit peel oil was fractionated by silica gel column chromatog. with hexane and then MeOH, and the hydrocarbon fraction was distilled to sep. mono- and sesquiterpenes. The oxygenated compds. were fractionated by known methods, and all fractions were analyzed by gas chromatog. The oil contained 89.4% terpenes and 9.4% oxygenated compds. Of the 40 peaks separated, 28 compds. were identified, including 12 hydrocarbons, 8 aldehydes, and 8 alcs. The major compds. of each fraction were: monoterpenes limonene [138-86-3], sesquiterpenes caryophyllene [87-44-5] and α -ylangene [14912-44-8], aldehydes decanal [112-31-2] and octanal [124-13-0], and alcs. linalool [78-70-6] and α -terpineol [98-55-5]. Phys. and chemical characteristics agreed with those for the Florida oil.

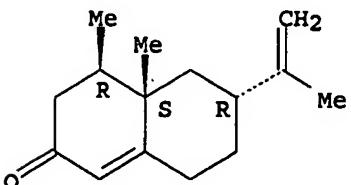
IT 4674-50-4

RL: BIOL (Biological study)
(of grapefruit peel oil)

RN 4674-50-4 HCAPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1984:119412 HCAPLUS

DOCUMENT NUMBER: 100:119412

TITLE: Quantitation of individual and total aldehydes in citrus cold-pressed oils by fused silica capillary gas chromatography

AUTHOR(S): Wilson, Charles W., III; Shaw, Philip E.

CORPORATE SOURCE: U. S. Citrus Subtrop. Prod. Lab., Winter Haven, FL,

SOURCE: 33883, USA
 Journal of Agricultural and Food Chemistry (1984), 32(3), 399-401
 CODEN: JAFCAU; ISSN: 0021-8561

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Total aldehydes in cold-pressed oils from California and Florida citrus cultivars were quantified by fused silica capillary gas chromatog. using a nonpolar bonded-phase fused silica column (DB-5, 30m + 0.32 mm i.d., 1.0 μ m film thickness; with H₂ as the carrier gas). Total aldehydes by gas chromatog. were from 93 to 100% of the USP total aldehyde value and were within the limits of precision for the USP method. The major aldehydes quantified in oils were octanal [124-13-0] and decanal [112-31-2], and these values were higher in oils with the higher total aldehydes with 1 exception. Most values for individual aldehydes were within or below aldehyde values reported earlier.

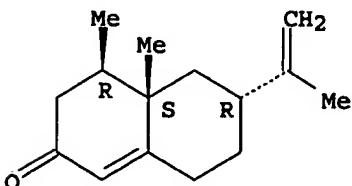
IT 4674-50-4

RL: ANT (Analyte); ANST (Analytical study)
 (determination of, in citrus fruit oils, gas-chromatog.)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L24 ANSWER 14 OF 16 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1969:516471 HCPLUS

DOCUMENT NUMBER: 71:116471

TITLE: Vetiveria nigritana from Angola. II. Alcohols and ketones of the essential oil

AUTHOR(S): Cardoso do Vale, Jose; Proenca da Cunha, Antonio

CORPORATE SOURCE: Port.

SOURCE: Garcia de Orta (1967), 15(2), 205-24

CODEN: GOJVA2; ISSN: 0016-4569

DOCUMENT TYPE: Journal

LANGUAGE: Portuguese

AB Alcs. and ketones were studied by column chromatog. of the essential oil from the roots of V. nigritana from Angola on activated silica gel. The fraction separated by 1% MeOH in C₆H₆ contained a secondary alc., C₁₅H₂₄O, as well as ketones identified by means of anal. detns.; 2 ketones giving semicarbazones, m. 225 and 75°, were separated. The fraction obtained by elution of the column with EtOAc was mainly rich in tertiary alcs. When left undisturbed at room temperature this eluate yielded

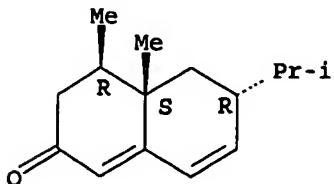
a crystalline product which on recrystn. from light petroleum ether gave a product (I), m. 154-5°, and another (II), m. 216-17°, resp.

II was less abundant than II and was studied by means of thin-layer chromatog. and gas chromatog. techniques, ir spectra, and mol. weight determination

The results indicate that I is a dialc., C₁₅H₂₆O₂, with a secondary and tertiary alc. function. The ring system of the tertiary alcs. was also elucidated through the identification of the vetivazulene obtained by dehydration of alcs. followed by dehydrogenation of the resulting hydrocarbons.

L24 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1967:414779 HCAPLUS
 DOCUMENT NUMBER: 67:14779
 TITLE: Terpenoids. CXV. Chemical constituents of Nardostachys jatamansi
 AUTHOR(S): Sastry, S. D.; Maheshwari, M. L.; Chakravarti, Kamala K.; Bhattacharyya, Sasanka C.
 CORPORATE SOURCE: Natl. Chem. Lab., Poona, India
 SOURCE: Perfumery and Essential Oil Record (1967), 58(3), 154-8
 CODEN: PEORAA; ISSN: 0369-8998
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI For diagram(s), see printed CA Issue.
 AB cf. CA 67: 3155y. The powdered roots were extracted with petroleum ether (40-60°) to yield a concrete ([α]28D +0.5°, n₂₆D 1.4990, acid number 21.16, ester number 103.7), which was dissolved in alc., cooled to 0° for 48 hrs. to sep. the wax, and evaporated under reduced pressure to yield a solid extract which gave an acidic fraction consisting essentially of isovaleric acid; the neutral fraction (97.8%) was chromatographed on Grade III neutral alumina and eluted with petroleum ether, C₆H₆, Et₂O, and EtOH. n-Hexacosanyl arachidate was separated from the petroleum ether fraction, and the filtrate was shown by thin-layer and gas chromatog. to contain calarene, n-hexacosane, and n-hexacosanyl isovalerate. The benzene fraction chromatographed on alumina and eluted with petroleum ether yielded valerenone, valerenal, nardol, n-hexacosanol, calarenol, nardostachone and β-sitosterol. The Et₂O fraction yielded an unidentified volatile portion and a nonvolatile portion (β-sitosterol). New sesquiterpenoids identified were nardol (I), C₁₅H₂₆O, b_{0.1} 120-5°, n₂₆D 1.5005, [α]27D -10.17°; calarenol (II), C₁₅H₂₄O, b_{0.1} 120-5°, [α]20D +47.9°, n₂₆D 1.1543; and nardostachone (III), semicarbazone m. 230-2°, b_{0.09} 130-5°, n₂₆D 1.5571, [α]27D +209.3. The ir spectra of the sesquiterpenoids are given.
 IT 15401-59-9
 RL: BIOL (Biological study)
 (in Nardostachys jatamansi rhizomes)
 RN 15401-59-9 HCAPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6-tetrahydro-4,4a-dimethyl-6-(1-methylethyl)-, [4R-(4a,4aα,6β)]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



ACCESSION NUMBER: 1967:403154 HCPLUS
 DOCUMENT NUMBER: 67:3154
 TITLE: Terpenoids. CVII. The structure of nardostachone
 AUTHOR(S): Sastry, S. D.; Maheshwari, M. L.; Chakravarti, Kamala
 K.; Bhattacharyya, Sasanka C.
 CORPORATE SOURCE: Natl. Chem. Lab., Poona, India
 SOURCE: Tetrahedron (1967), 23(5), 2491-3
 DOCUMENT TYPE: Journal
 LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB cf. preceding abstract A new diethenoid, bicyclic ketone, C₁₅H₂₂O, named nardostachone, was isolated from the roots of Nardostachys jatamansi. On the basis of spectral evidences and its conversion to tetrahydronootkatone on hydrogenation, it is represented by the stereoformula I.

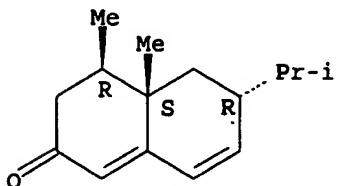
IT 15401-59-9

RL: RCT (Reactant); RACT (Reactant or reagent)
 (as structure for nardostachone)

RN 15401-59-9 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6-tetrahydro-4,4a-dimethyl-6-(1-methylethyl)-,
 [4R-(4a,4aα,6β)]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



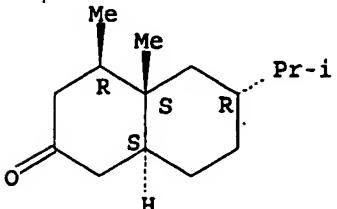
IT 20489-54-7P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

RN 20489-54-7 HCPLUS

CN 2(1H)-Naphthalenone, octahydro-4,4a-dimethyl-6-(1-methylethyl)-,
 (4R,4aS,6R,8aS)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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L1 33 SEA FILE=REGISTRY ABB=ON PLU=ON NOOTKATON?

Pryor 10_769830 Claim 76

L25 SEL PLU=ON L1 1- CHEM : 100 TERMS
L27 133 SEA L25
L28 133 SEA L27 OR NOOTAK?
L29 7 SEA L28 AND (MATERIAL OR SOIL OR POLYMER? OR DIATOMACEO? OR
DIATOMITE OR SAND OR CELLULOSE)

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Pryor 10_769830 Claim 76

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3/3/1 (Item 1 from file: 5)
DIALOG(R) File 5:Biosis Previews (R)
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0014165354 BIOSIS NO.: 200300122464

Comparative effects of vetiver oil, nootkatone and disodium octaborate tetrahydrate on Coptotermes formosanus and its symbiotic fauna.

AUTHOR: Maistrello Lara; Henderson Gregg (Reprint); Laine Roger A
AUTHOR ADDRESS: Agricultural Center, Department of Entomology, Louisiana State University, 402 Life Sciences Bldg, Baton Rouge, LA, 70803, USA**
USA

AUTHOR E-MAIL ADDRESS: GRHenderson@agctr.lsu.edu

JOURNAL: Pest Management Science 59 (1): p58-68 January 2003 2003

MEDIUM: print

ISSN: 1526-498X (ISSN print)

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

3/3/2 (Item 2 from file: 5)
DIALOG(R) File 5:Biosis Previews (R)
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0013286669 BIOSIS NO.: 200100458508

Effects of nootkatone and a borate compound on formosan subterranean termite (Isoptera: Rhinotermitidae) and its symbiont protozoa

AUTHOR: Maistrello Lara (Reprint); Henderson Gregg (Reprint); Laine Roger A
AUTHOR ADDRESS: Department of Entomology, Louisiana State University Agricultural Center, 402 Life Sciences Bldg., Baton Rouge, LA, 70803, USA
**USA

JOURNAL: Journal of Entomological Science 36 (3): p229-236 July, 2001 2001

MEDIUM: print

ISSN: 0749-8004

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

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RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,
 UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
 BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 EP 1296752 A1 20030402 EP 2001-945526 20010704
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 JP 2004501757 T2 20040122 JP 2002-506833 20010704
 US 2003185956 A1 20031002 US 2003-312438 20030529
 PRIORITY APPLN. INFO.: GB 2000-16312 A 20000704
 WO 2001-GB3003 W 20010704

AB A method for extracting one or more desired components from a mixture in an aqueous

phase comprises separating the aqueous mixture from a water-immiscible hydrophobic

phase by means of a hydrophilic membrane and allowing the desired components to move out of the aqueous phase through the membrane and into the hydrophobic phase. The remaining components have a lower water solubility than the desired component(s), such that the remaining components are incapable of passing through the membrane. The method may be used for the isolation of materials from reaction mixts., for purification purposes or for the preparation of exts. of natural substances (flavors and aromas). Thus, selective extraction of nootkatone from grapefruit peel is attained by using a cellulose acetate dialysis membrane. Exts. may be produced in the form of carrier-based flavors, for instance absorbed on paper or maltodextrins, or encapsulated into maltodextrins, including into glass forms; which can then be formed into powders or tablets and used as such.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 9 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:678276 HCAPLUS
 DOCUMENT NUMBER: 135:299936
 TITLE: Effects of nootkatone and a borate compound on formosan subterranean termite (Isoptera: Rhinotermitidae) and its symbiont protozoa
 AUTHOR(S): Maistrello, Lara; Henderson, Gregg; Laine, Roger A.
 CORPORATE SOURCE: Department of Entomology, Louisiana State University Agricultural Center, Baton Rouge, LA, 70803, USA
 SOURCE: Journal of Entomological Science (2001), 36(3), 229-236
 CODEN: JESCEP; ISSN: 0749-8004
 PUBLISHER: Georgia Entomological Society, Inc.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Wood treated with disodium octaborate tetrahydrate, with nootkatone, a natural extract isolated from vetiver oil, or with both nootkatone and disodium octaborate tetrahydrate was tested for effects on Coptotermes formosanus Shiraki and its hindgut flagellates. After 7 d disodium octaborate tetrahydrate-treated wood induced high termite mortality and almost complete loss of flagellates, confirming the toxicity of borates to these termites. Wood treated with nootkatone alone or with the nootkatone-borate mix was consumed in significantly lower amts. than the control, and termite survival was comparable to results obtained for starved termites. A significant progressive reduction in the total number of protozoa was observed for all groups, including the controls. Thus, nootkatone acts as a

feeding deterrent, inducing starvation that results in almost a complete loss of Pseudotrichonympha grassii , the most important flagellate species for cellulose digestion in this termite.

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 10 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:290022 HCPLUS
 DOCUMENT NUMBER: 134:312041
 TITLE: Apparatus for chemically compacting styrene polymer foams
 INVENTOR(S): Sakai, Tokue
 PATENT ASSIGNEE(S): Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001114927	A2	20010424	JP 1999-299017	19991021
PRIORITY APPLN. INFO.:			JP 1999-299017	19991021

AB The apparatus, useful for recycling styrene polymer foam wastes, comprises a main container part for dissolving the foam wastes in solvents (nootkatone, limonene, etc.), a lid having a device for pushing the foam wastes in the solvents, and a ring seal having a groove to fit the edge of the lid or the container, wherein the lid or the container has a groove on the edge to place the seal. Solvent leaking when the seal is swollen by the solvents is prevented with this apparatus An illustration of the apparatus is given.

L11 ANSWER 11 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 2001:178386 HCPLUS
 DOCUMENT NUMBER: 134:221521
 TITLE: Process for the preparation of nootkatone by laccase catalysis
 INVENTOR(S): Huang, Rongmin; Christenson, Philip A.; Labuda, Ivica M.
 PATENT ASSIGNEE(S): Givaudan S.A., Switz.
 SOURCE: U.S., 14 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6200786	B1	20010313	US 1999-391785	19990908
ZA 2000004379	A	20010228	ZA 2000-4379	20000824
EP 1083233	A1	20010314	EP 2000-117432	20000828
EP 1083233	B1	20030820		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 247715	E	20030915	AT 2000-117432	20000828
AU 739171	B2	20011004	AU 2000-53700	20000829
SG 87164	A1	20020319	SG 2000-4972	20000831
BR 2000004038	A	20010522	BR 2000-4038	20000906

=> d stat que

L1 33 SEA FILE=REGISTRY ABB=ON PLU=ON NOOTKATON?
L2 SEL PLU=ON L1 1- CHEM : 100 TERMS
L3 492 SEA FILE=HCAPLUS ABB=ON PLU=ON L2
L4 492 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 OR NOOTKATON?
L5 7087 SEA FILE=HCAPLUS ABB=ON PLU=ON (TICKS/CV OR ACARI/CV) OR
TICK OR ACARI OR ANTITICK? OR ANTIACARI?
L6 6 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 AND L5
L7 194193 SEA FILE=HCAPLUS ABB=ON PLU=ON PESTICIDES/CV OR ACARICIDES/CV
OR INSECTICIDES/CV OR RODENTICIDES/CV REPELLENTS/CV OR
PESTICIDE OR INSECTICIDE OR RODENTICIDE OR REPELLENT
L8 16 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4 AND L7) NOT L6
L9 4916981 SEA FILE=HCAPLUS ABB=ON PLU=ON MATERIAL OR SOIL OR POLYMER?
OR DIATOMACEO? OR DIATOMITE OR SAND OR CELLULOSE
L10 34 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 (L)L9
L11 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L10 NOT (L6 OR L8)
L15 42 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4 (L) (TREAT? OR APPLY OR
APPLIED)) NOT (L6 OR L8)
L16 37 SEA FILE=HCAPLUS ABB=ON PLU=ON L15 NOT L11
L23 26 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4 AND (MULCH OR GRASS OR
ROOT OR ALUMIN? OR SILICA OR CLAY OR SOLID(W) SUBSTANC?)) NOT
(L6 OR L8 OR L11 OR L16)
L24 16 SEA FILE=HCAPLUS ABB=ON PLU=ON L23 AND PD=<AUGUST 17, 2001
L30 30 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 AND (WOOD OR CLOTH? OR
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TEXTILE?)
L31 20 SEA FILE=HCAPLUS ABB=ON PLU=ON L30 NOT (L6 OR L8 OR L16 OR
L24)
L32 9 SEA FILE=HCAPLUS ABB=ON PLU=ON L31 AND PD=<AUGUST 17, 2001

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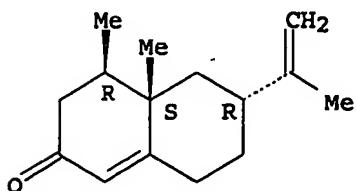
L32 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:678276 HCAPLUS
DOCUMENT NUMBER: 135:299936
TITLE: Effects of nootkatone and a borate compound
on formosan subterranean termite (Isoptera:
Rhinotermitidae) and its symbiont protozoa
AUTHOR(S): Maistrello, Lara; Henderson, Gregg; Laine, Roger A.
CORPORATE SOURCE: Department of Entomology, Louisiana State University
Agricultural Center, Baton Rouge, LA, 70803, USA
SOURCE: Journal of Entomological Science (2001),
36(3), 229-236
CODEN: JESCEP; ISSN: 0749-8004
PUBLISHER: Georgia Entomological Society, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Wood treated with disodium octaborate tetrahydrate, with
nootkatone, a natural ext. isolated from vetiver oil, or with both
nootkatone and disodium octaborate tetrahydrate was tested for
effects on Coptotermes formosanus Shiraki and its hindgut flagellates.
After 7 d disodium octaborate tetrahydrate-treated wood induced
high termite mortality and almost complete loss of flagellates, confirming
the toxicity of borates to these termites. Wood treated with
nootkatone alone or with the nootkatone-borate mix was
consumed in significantly lower amts. than the control, and termite
survival was comparable to results obtained for starved termites. A
significant progressive redn. in the total no. of protozoa was obsd. for
all groups, including the controls. Thus, nootkatone acts as a
feeding deterrent, inducing starvation that results in almost a complete
loss of Pseudotrichonympha grassii , the most important flagellate species
for cellulose digestion in this termite.
IT 4674-50-4, Nootkatone
RL: BAC (Biological activity or effector, except adverse); BSU (Biological

study, unclassified); BIOL (Biological study)
 (effects of nootkatone and octaborate on formosan
 subterranean termite and its symbiont protozoa)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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 YOU HAVE REQUESTED DATA FROM 8 ANSWERS - CONTINUE? Y/ (N) :end

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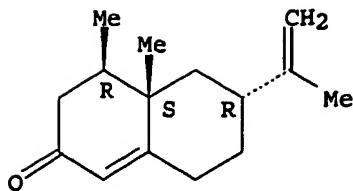
L32 ANSWER 2 OF 9 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1995:732208 HCPLUS
 DOCUMENT NUMBER: 123:142269
 TITLE: Effect of ethylene on naringin, narirutin and nootkatone accumulation in grapefruit
 AUTHOR(S): Garcia Puig, D.; Perez, M. L.; Fuster, M. D.; Ortuno, A.; Sabater, F.; Porras, I.; Garcia Lidon, A.; Del Rio, J. A.
 CORPORATE SOURCE: Facultad de Biología, Univ. de Murcia, Murcia, E-30100, Spain
 SOURCE: Planta Medica (1995), 61(3), 283-5
 CODEN: PLMEAA; ISSN: 0032-0943
 PUBLISHER: Thieme
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB This paper studies the effect of different concns. of ethephon on the levels of the sesquiterpene, nootkatone, and of the flavanones, naringin and narirutin, in grapefruit. Nootkatone synthesis and/or accumulation was stimulated by all the concns. of ethephon assayed, while the levels of naringin and narirutin in the rind diminished. These results open up new perspectives concerning the possible regulation of the secondary metab. of the plants.

IT 4674-50-4, Nootkatone
 RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
 (effect of ethylene on naringin, narirutin and nootkatone accumulation in grapefruit)

RN 4674-50-4 HCPLUS
 CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L32 ANSWER 3 OF 9 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:730353 HCPLUS

DOCUMENT NUMBER: 123:138818

TITLE: Identification of wood species in conifer wood

AUTHOR(S): Hiraki, Toshikazu; Kota, Masahito; Kawaguchi, Toshimune; Ikehara, Yukari; Arime, Masaaki; Satou, Souei

CORPORATE SOURCE: Osaka Customs Laboratory, Osaka, 552, Japan

SOURCE: Kanzei Chuo Bunsekisho (1995), 34, 105-20

CODEN: KCBSDI; ISSN: 0286-1933

PUBLISHER: Okurasho Kanzei Chuo Bunsekisho

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB For the identification of the species in conifer wood, their exts. from woods with n-hexane were analyzed by gas-chromatog. and mass-spectrometry method (GC-MS method). In addn., the observation of wood tissue by microscopy was also examd. The total ion chromatogram patterns of their exts. exhibited characteristic pattern depending on the species of these woods. Specific components detected in some wood species were used for identification of conifer woods; todomatuic acid Me ester from Todo-Matsu, nootkatone from Yellow Cedar and nezukone from Western Red Cedar. Characteristic structures of wood tissue were obsd. by microscopy for the discrimination of these wood species. Thus, GC-MS and microscopic methods were very useful for the indentification of the species in conifer wood.

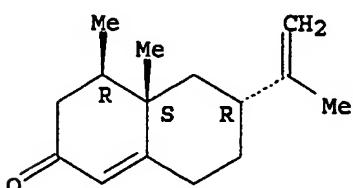
IT 4674-50-4, Nootkatone

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(identification of constituents of conifer species)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L32 ANSWER 4 OF 9 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:319389 HCPLUS

DOCUMENT NUMBER: 120:319389

TITLE: Extraction of volatile compounds from conifer woods with supercritical carbon dioxide

AUTHOR(S): Terauchi, Fumio; Ohira, Tatsuro; Yatagai, Mitsuyoshi; Ohgama, Toshimasa; Aoki, Hiroyuki; Suzuki, Tsutomu

CORPORATE SOURCE: Grad. Sch. Sci. Technol., Chiba Univ., Chiba, 263,

Japan

SOURCE: Mokuzai Gakkaishi (1993), 39(12), 1421-30
CODEN: MKZGA7; ISSN: 0021-4795

DOCUMENT TYPE: Journal
LANGUAGE: Japanese

AB Supercrit. fluid extn. (SFE) with carbon dioxide and hot-water distn. were conducted using the woods of Chamaecyparis obtusa Endl. (hinoki), Thuja plicata D. Don. (western red cedar), Pinus densiflora S. et Z. (akamatsu), Pseudotsuga menziesii Franco (Douglas-fir), and Cryptomeria japonica D. Don (sugi). The yields by SFE (30 min) were more than those obtained by hot-water distn. for 8 h, except for Alaska cedar. The yields at 300 kgf/cm² were about twice as high as those at 100 kgf/cm², and as extn. time increased, the yield increased. The components of SFE exts. and essential oils by hot-water distns. were identified by gas liq. chromatog. and gas chromatog.-mass spectrometry. The compn. of the SFE exts. from hinoki, sugi, akamatsu, and hinokiasunaro were qual. similar to those of essential oils obtained by hot-water distn. Although the contents of high-mol.-wt. compds. and terpene hydrocarbons were a little greater in SFE exts. than in essential oils obtained by hot-water distn. Western red cedar and Douglas-fir woods were extd. selectively by SFE, and the compns. of SFE exts. were quite different from the essential oils obtained by hot-water distn.

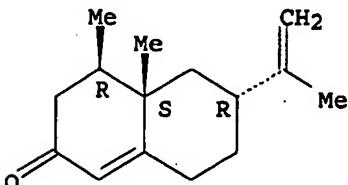
IT 4674-50-4, Nootkatone

RL: PROC (Process)
(extn. of, from conifer woods with supercrit. carbon dioxide)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L32 ANSWER 5 OF 9 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:173092 HCPLUS

DOCUMENT NUMBER: 120:173092

TITLE: Minor components in the essential oil of Juniperus oxycedrus L. wood

AUTHOR(S): Barrero, Alejandro F.; Oltra, J. Enrique; Altarejos, Joaquin; Barragan, Armando; Lara, Armando; Laurent, Raymond

CORPORATE SOURCE: Fac. Cienc., Univ. Granada, Granada, 18071, Spain

SOURCE: Flavour and Fragrance Journal (1993), 8(4), 185-9

CODEN: FFJOED; ISSN: 0882-5734

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A detailed study of the essential oil from the wood of Juniperus oxycedrus L. allowed the identification of 42 components, 15 of them being reported the first time in this oil.

IT 4674-50-4, Nootkatone

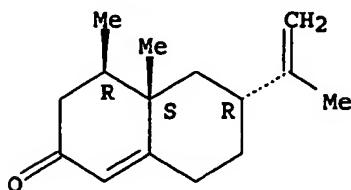
RL: BIOL (Biological study)
(of Juniperus oxycedrus wood oil)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-

methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L32 ANSWER 6 OF 9 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:571728 HCPLUS

DOCUMENT NUMBER: 117:171728

TITLE: Sesquiterpenes. Carbon-13 and proton NMR chemical shifts of new thujopsane and nootkatane derivatives.

AUTHOR(S): Wolff, Peter

CORPORATE SOURCE: Ruhr-Univ. Bochum, Bochum, 4630/1, Germany

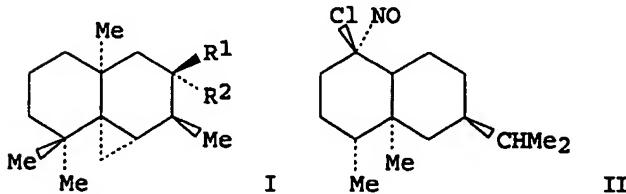
SOURCE: Magnetic Resonance in Chemistry (1992),
30(8), 803-4

CODEN: MRCHEG; ISSN: 0749-1581

DOCUMENT TYPE: Journal

LANGUAGE: English

GI



AB The ^{13}C - and ^1H -NMR spectra of thujopsanone oxime (I; R₁R₂ = NOH), 7-halo-7-nitrosothujopsanes (I; R₁ = Cl, Br, R₂ = NOH), nootkat-1-one oxime and 1-chloro-1-nitrosonootkatane (II) are reported.

L32 ANSWER 7 OF 9 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1987:72732 HCPLUS

DOCUMENT NUMBER: 106:72732

TITLE: Uses of 2-methyl-4-phenyl-1-pentanol derivatives in augmenting or enhancing the aroma or taste of consumable materials

INVENTOR(S): Hall, John B.

PATENT ASSIGNEE(S): International Flavors and Fragrances Inc., USA

SOURCE: U.S., 26 pp. Division of U.S. Ser. No. 681,656.

CODEN: USXXAM

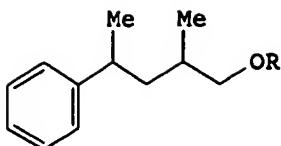
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4610812	A	19860909	US 1985-784059	19851004 <--
US 4650898	A	19870317	US 1984-681656	19841214 <--
PRIORITY APPLN. INFO.:			US 1984-681656	A3 19841214



AB Pentanol derivs. I ($R = H, Ac$) are added to consumable materials, e.g. perfume compns., colognes, perfumed articles, foodstuffs, chewing gums, medicinal products, and chewing tobacco, to augment or enhance the aroma or taste. I ($R = H$) has a powerful long-lasting stable green grapefruit-like, nootkatone-like, animalic, leathery, vetiver-like, olibanum, musky and floral aroma profile; and a floral, green, weedy, fruity, grapefruit, galbanum-like aroma and taste at 1 ppm. I ($R = Ac$) has a green, styrallyl acetate-like aroma; and a floral, nootkatone-like, oriental, green pepper-like aroma and taste at 1 ppm. I ($R = H$) was prep'd. by condensation of propanal with hydratropic aldehyde to give a mixt. contg. isomeric 2-methyl-4-pentenals, which were hydrogenated using Raney Ni catalyst. I ($R = H$) was acetylated with Ac₂O in presence of conc. H₃PO₄ to give I ($R = Ac$). A herbal perfume formulation contained Oakmoss abs. 20, 2-methyl-3,4-(methylenedioxy)hydrocinnamic aldehyde 10, Me dihydrojasmonate 100 coumarin 20, musk ketone 80, isocyclocitral 10, galbanum oil 6 rosemary oil 10, pine needle oil 60, fir balsam abs. 10, bergamot oil 60, lemon oil 14, benzyl acetate 468, linalool 80, indole 6, undecalactone 12 and I ($R = H$) 12 parts by wt.

L32 ANSWER 8 OF 9 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1972:89951 HCPLUS
 DOCUMENT NUMBER: 76:89951
 TITLE: Odor and molecular structure
 AUTHOR(S): Teranishi, R.
 CORPORATE SOURCE: West. Util. Res. Dev. Div., Agric. Res. Serv., Albany, CA, USA
 SOURCE: Gustation Olfaction, Int. Symp. (1971), Meeting Date 1970, 165-77. Editor(s): Ohloff, Guenther. Academic: London, Engl.
 CODEN: 24IDA7
 DOCUMENT TYPE: Conference
 LANGUAGE: English

AB Small changes in the chem. structure of musk-, amber-, and wood -type odor compds. change the potency greatly but not the quality. In the case of nootkatone and related compds. the quality changes but the potency remains relatively unchanged. 2-Methoxy-3-isobutylpyrazine, the characteristic, highly potent odor component of green bell peppers, has an unusually high odor potency even among the enantiomers.

L32 ANSWER 9 OF 9 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:509933 HCPLUS
 DOCUMENT NUMBER: 73:109933
 TITLE: Nootkatone from nootkatene
 INVENTOR(S): Ohloff, Guenther
 PATENT ASSIGNEE(S): Firmaenich et Cie.
 SOURCE: Ger. Offen., 13 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1948033	A	19700903	DE 1969-1948033	19690923 <-
CH 502291	A	19710131	CH 1968-502291	19680925 <-
FR 2018838	A5	19700626	FR 1969-32534	19690924 <-
NL 6914545	A	19700331	NL 1969-14545	19690925 <-
GB 1208090	A	19701007	GB 1969-1208090	19690925 <-
SE 356968	B	19730612	SE 1969-13198	19690925 <-
PRIORITY APPLN. INFO.:				CH 1968-14342 A 19680925

GI For diagram(s), see printed CA Issue.

AB Nootkatone (I) was prep'd. from nootkatone (II) by hydrochlorination and subsequent oxidn. with Na₂Cr₂O₇ or Jones' reagent. I was useful as grapefruit-like flavor. Thus, II was isolated from the wood of Chamaecyparis nootkensis by steam distn. and chromatog. of the org. layer. A II soln. in Et₂O was satd. with gaseous HCl at -10 to 0.degree.. Jones' reagent was added to give after 60 hr 80% I.

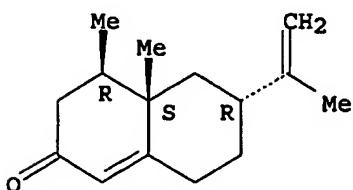
IT 4674-50-4P

RL: PREP (Preparation)
(from nootkatene)

RN 4674-50-4 HCPLUS

CN 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, (4R,4aS,6R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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3/3/1 (Item 1 from file: 5)
DIALOG(R) File 5:Biosis Previews(R)
(c) 2006 BIOSIS. All rts. reserv.

0014165354 BIOSIS NO.: 200300122464
Comparative effects of vetiver oil, nootkatone and disodium
octaborate tetrahydrate on Coptotermes formosanus and its symbiotic
fauna.

AUTHOR: Maistrello Lara; Henderson Gregg (Reprint); Laine Roger A
AUTHOR ADDRESS: Agricultural Center, Department of Entomology, Louisiana
State University, 402 Life Sciences Bldg, Baton Rouge, LA, 70803, USA**
USA

AUTHOR E-MAIL ADDRESS: GRHenderson@agctr.lsu.edu

JOURNAL: Pest Management Science 59 (1): p58-68 January 2003 2003

MEDIUM: print

ISSN: 1526-498X (ISSN print)

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

3/3/2 (Item 2 from file: 5)
DIALOG(R) File 5:Biosis Previews(R)
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0013286669 BIOSIS NO.: 200100458508

Effects of nootkatone and a borate compound on formosan
subterranean termite (Isoptera: Rhinotermitidae) and its symbiont
protozoa

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JP 2004501757 T2 20040122 JP 2002-506833 20010704
US 2003185956 A1 20031002 US 2003-312438 20030529
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WO 2001-GB3003 W 20010704

AB A method for extracting one or more desired components from a mixture in an aqueous

phase comprises separating the aqueous mixture from a water-immiscible hydrophobic

phase by means of a hydrophilic membrane and allowing the desired components to move out of the aqueous phase through the membrane and into the hydrophobic phase. The remaining components have a lower water solubility than the desired component(s), such that the remaining components are incapable of passing through the membrane. The method may be used for the isolation of materials from reaction mixts., for purification purposes or for the preparation of exts. of natural substances (flavors and aromas). Thus, selective extraction of nootkatone from grapefruit peel is attained by using a cellulose acetate dialysis membrane. Exts. may be produced in the form of carrier-based flavors, for instance absorbed on paper or maltodextrins, or encapsulated into maltodextrins, including into glass forms; which can then be formed into powders or tablets and used as such.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 9 OF 28 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:678276 HCAPLUS

DOCUMENT NUMBER: 135:299936

TITLE: Effects of nootkatone and a borate compound on formosan subterranean termite (Isoptera: Rhinotermitidae) and its symbiont protozoa

AUTHOR(S): Maistrello, Lara; Henderson, Gregg; Laine, Roger A.
CORPORATE SOURCE: Department of Entomology, Louisiana State University Agricultural Center, Baton Rouge, LA, 70803, USA

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LANGUAGE: English

AB Wood treated with disodium octaborate tetrahydrate, with nootkatone, a natural extract isolated from vetiver oil, or with both nootkatone and disodium octaborate tetrahydrate was tested for effects on Coptotermes formosanus Shiraki and its hindgut flagellates. After 7 d disodium octaborate tetrahydrate-treated wood induced high termite mortality and almost complete loss of flagellates, confirming the toxicity of borates to these termites. Wood treated with nootkatone alone or with the nootkatone-borate mix was consumed in significantly lower amts. than the control, and termite survival was comparable to results obtained for starved termites. A significant progressive reduction in the total number of protozoa was observed for all groups, including the controls. Thus, nootkatone acts as a

feeding deterrent, inducing starvation that results in almost a complete loss of Pseudotrichonympha grassii , the most important flagellate species for cellulose digestion in this termite.

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 10 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:290022 HCPLUS

DOCUMENT NUMBER: 134:312041

TITLE: Apparatus for chemically compacting styrene polymer foams

INVENTOR(S): Sakai, Tokue

PATENT ASSIGNEE(S): Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001114927	A2	20010424	JP 1999-299017	19991021
PRIORITY APPLN. INFO.:			JP 1999-299017	19991021

AB The apparatus, useful for recycling styrene polymer foam wastes, comprises a main container part for dissolving the foam wastes in solvents (nootkatone, limonene, etc.), a lid having a device for pushing the foam wastes in the solvents, and a ring seal having a groove to fit the edge of the lid or the container, wherein the lid or the container has a groove on the edge to place the seal. Solvent leaking when the seal is swollen by the solvents is prevented with this apparatus An illustration of the apparatus is given.

L11 ANSWER 11 OF 28 HCPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:178386 HCPLUS

DOCUMENT NUMBER: 134:221521

TITLE: Process for the preparation of nootkatone by laccase catalysis

INVENTOR(S): Huang, Rongmin; Christenson, Philip A.; Labuda, Ivica M.

PATENT ASSIGNEE(S): Givaudan S.A., Switz.

SOURCE: U.S., 14 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6200786	B1	20010313	US 1999-391785	19990908
ZA 2000004379	A	20010228	ZA 2000-4379	20000824
EP 1083233	A1	20010314	EP 2000-117432	20000828
EP 1083233	B1	20030820		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 247715	E	20030915	AT 2000-117432	20000828
AU 739171	B2	20011004	AU 2000-53700	20000829
SG 87164	A1	20020319	SG 2000-4972	20000831
BR 2000004038	A	20010522	BR 2000-4038	20000906